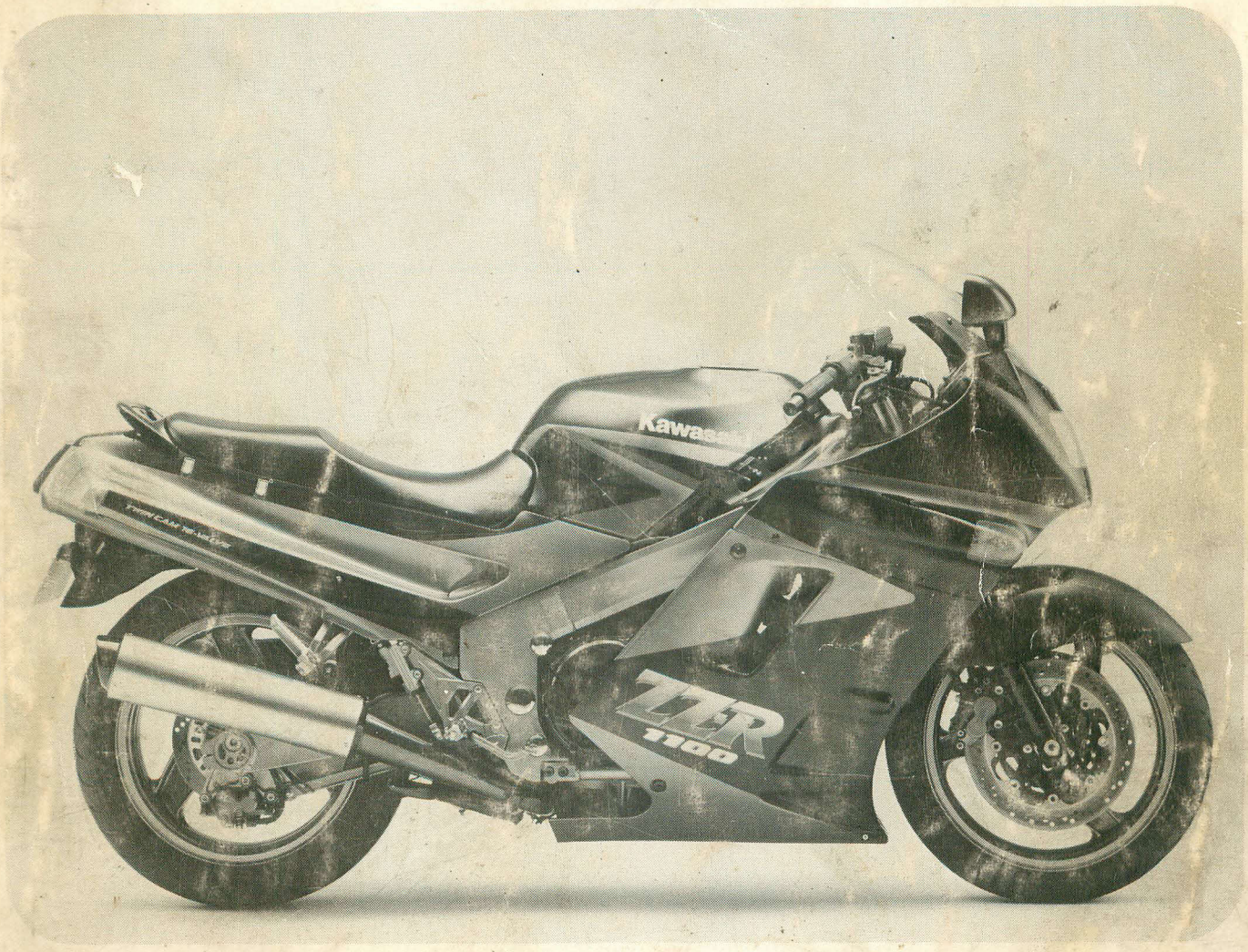
Kawasaki

Ninja ZX-11
ZZ-R1100



Motorcycle Service Manual Supplement

Quick Reference Guide

This quick reference guide will assist you in locating a desired topic or procedure.

- Bend the pages back to match the black tab of the desired chapter number with the black tab on the edge at each table of contents page.
- Refer to the sectional table of contents for the exact pages to locate the specific topic required.

Kawasaki

Ninja ZX-11
ZZ-R1100

Motorcycle
Service Manual
Supplement

© Kawasaki Heavy Industries, Ltd. 1990, 1991

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LIST OF ABBREVIATIONS

A	ampere(s)	lb	pound(s)
ABDC	after bottom dead center	m	meter(s)
AC	alternating current	min	minute(s)
ATDC	after top dead center	N	newton(s)
BBDC	before bottom dead center	Pa	pascal(s)
BDC	bottom dead center	PS	horsepower
BTDC	before top dead center	psi	pound(s) per square inch
°C	degree(s) Celsius	r	revolution
DC	direct current	rpm	revolution(s) per minute
F	farad(s)	TDC	top dead center
°F	degree(s) Fahrenheit	TIR	total indicator reading
ft	foot, feet	V	volt(s)
g	gram(s)	W	watt(s)
h	hour(s)	Ω	ohm(s)
L	liter(s)		

This warning may apply to any of the following components or any assembly containing one or more of these components:-

Brake Shoes or Pads
Clutch Friction Material
Gaskets
Insulators

SAFETY INSTRUCTIONS

- Operate if possible out of doors or in a well ventilated place.
- Preferably use hand tools or low speed tools equipped, if necessary, with an appropriate dust extraction facility. If high speed tools are used, they should always be so equipped.
- If possible, dampen before cutting or drilling.
- Dampen dust and place it in properly closed receptacle and dispose of it safely.

Read OWNER'S MANUAL before operating.

EMISSION CONTROL INFORMATION

To protect the environment in which we all live, Kawasaki has incorporated crankcase emission (1) and exhaust emission (2) control systems in compliance with applicable regulations of the United States Environmental Protection Agency and California Air Resources Board. Additionally, Kawasaki has incorporated an evaporative emission control system (3) in compliance with applicable regulations of the California Air Resources Board on vehicles sold in California only.

1. Crankcase Emission Control System

   This system eliminates the release of crankcase vapors into the atmosphere. Instead, the vapors are routed through an oil separator to the intake side of the engine. While the engine is operating, the vapors are drawn into combustion chamber, where they are burned along with the fuel and air supplied by the carburetion system.

2. Exhaust Emission Control System

   This system reduces the amount of pollutants discharged into the atmosphere by the exhaust of this motorcycle. The fuel and ignition systems of this motorcycle have been carefully designed and constructed to ensure an efficient engine with low exhaust pollutant levels.

3. Evaporative Emission Control System

   Vapors caused by fuel evaporation in the fuel system are not vented into the atmosphere. Instead, fuel vapors are routed into the running engine to be burned, or stored in a canister when the engine is stopped. Liquid fuel is caught by a vapor separator and returned to the fuel tank.

The Clean Air Act, which is the Federal law covering motor vehicle pollution, contains what is commonly referred to as the Act's "tampering provisions."

"Sec. 203(a) The following acts and the causing thereof are prohibited...

(3)(A) for any person to remove or render inoperative any device or element of design installed on or in a motor vehicle or motor vehicle engine in compliance with regulations under this title prior to its sale and delivery to the ultimate purchaser, or for any manufacturer or dealer knowingly to remove or render inoperative any such device or element of design after such sale and delivery to the ultimate purchaser.

(3)(B) for any person engaged in the business of repairing, servicing, selling, leasing, or trading motor vehicles or motor vehicle engines, or who operates a fleet of motor vehicles knowingly to remove or render inoperative any device or element of design installed on or in a motor vehicle or motor vehicle engine in compliance with regulations under this title following its sale and delivery to the ultimate purchaser..."

(Continued on next page.)

NOTE

- *The phrase "remove or render inoperative any device or element of design" has been generally interpreted as follows:*
  1. *Tampering does not include the temporary or rendering inoperative of devices or elements of design in order to perform maintenance.*
  2. *Tampering could include:*
     a. *Maladjustment of vehicle components such that the emission standards are exceeded.*
     b. *Use of replacement parts or accessories which adversely affect the performance or durability of the motorcycle.*
     c. *Addition of components or accessories that result in the vehicle exceeding the standards.*
     d. *Permanently removing, disconnecting, or rendering inoperative any component or element of design of the emission control systems.*

WE RECOMMEND THAT ALL DEALERS OBSERVE THESE PROVISIONS OF FEDERAL LAW, THE VIOLATION OF WHICH IS PUNISHABLE BY CIVIL PENALTIES NOT EXCEEDING $10,000 PER VIOLATION.

TAMPERING WITH NOISE CONTROL SYSTEM PROHIBITED

Federal law prohibits the following acts or the causing thereof: (1) The removal or rendering inoperative by any person other than for purposes of maintenance, repair, or replacement, of any device or element of design incorporated into any new vehicle for the purpose of noise control prior to its sale or delivery to the ultimate purchaser or while it is in use, or (2) the use of the vehicle after such device or element of design has been removed or rendered inoperative by any person.

Among those acts presumed to constitute tampering are the acts listed below:

- Replacement of the original exhaust system or muffler with a component not in compliance with Federal regulations.
- Removal of the muffler(s) or any internal portion of the muffler(s).
- Removal of the air box or air box cover.
- Modifications to the muffler(s) or air intake system by cutting, drilling, or other means if such modifications result in increased noise levels.

Foreword

This ZX1100C Service Manual Supplement is designed to be used in conjunction with the ZX1000B Motorcycle Service Manual (P/N 99924-1098-02). The maintenance and repair procedures described in this supplement are only those that are unique to the ZX1100C motorcycle. Most service operations for these models remain identical to those described in the base Service Manual. Complete and proper servicing of the ZX1100C motorcycle therefore requires both this supplement and the base Service Manual.

This manual is designed primarily for use by trained mechanics in a properly equipped shop. However, it contains enough detail and basic information to make it useful to the owner who desires to perform his own basic maintenance and repair work. A basic knowledge of mechanics, the proper use of tools, and workshop procedures must be understood in order to carry out maintenance and repair satisfactorily. Whenever the owner has insufficient experience or doubts his ability to do the work, all adjustments, maintenance, and repair should be carried out only by qualified mechanics.

In order to perform the work efficiently and to avoid costly mistakes, read the text, thoroughly familiarize yourself with the procedures before starting work, and then do the work carefully in a clean area. Whenever special tools or equipment are specified, do not use makeshift tools or equipment. Precision measurements can only be made if the proper instruments are used, and the use of substitute tools may adversely affect safe operation.

For the duration of your warranty period, especially, we recommend that all repairs and scheduled maintenance be performed in accordance with this service manual. Any owner maintenance or repair procedure not performed in accordance with this manual may void the warranty.

To get the longest life out of your Motorcycle:

- Follow the Periodic Maintenance Chart in the Service Manual.
- Be alert for problems and non-scheduled maintenance.
- Use proper tools and genuine Kawasaki Motorcycle parts. Special tools, gauges, and testers that are necessary when servicing Kawasaki Motorcycles are introduced by the Special Tool Manual. Genuine parts provided as spare parts are listed in the Parts Catalog.
- Follow the procedures in this manual carefully. Don't take shortcuts.
- Remember to keep complete records of maintenance and repair with dates and any new parts installed.

How to Use this Manual

In preparing this manual, we divided the product into its major systems. These systems became the manual's chapters. All information for a particular system from adjustment through disassembly and inspection is located in a single chapter.

The Quick Reference Guide shows you all of the product's systems and assists in locating their chapters. Each chapter in turn has its own comprehensive Table of Contents.

The Periodic Maintenance Chart is located in the General Information chapter. The chart gives a time schedule for required maintenance operations.

If you want spark plug information, for example, go to the Periodic Maintenance Chart first. The chart tells you how frequently to clean and gap the plug. Next, use the Quick Reference Guide to locate the Electrical System chapter. Then, use the Table of Contents on the first page of the chapter to find the Spark Plug section.

Whenever you see these WARNING and CAUTION symbols, heed their instructions! Always follow safe operating and maintenance practices.

⚠WARNING

This warning symbol identifies special instructions or procedures which, if not correctly followed, could result in personal injury, or loss of life.

⚠CAUTION

This caution symbol identifies special instructions or procedures which, if not strictly observed, could result in damage to or destruction of equipment.

This manual contains four more symbols (in addition to WARNING and CAUTION) which will help you distinguish different types of information.

NOTE

○ *This note symbol indicates points of particular interest for more efficient and convenient operation.*

● Indicates a procedural step or work to be done.
○ Indicates a procedural sub-step or how to do the work of the procedural step it follows. It also precedes the text of a Note.
★ Indicates a conditional step or what action to take based on the results of the test or inspection in the procedural step or sub-step it follows.

In most chapters an exploded view illustration of the system components follows the Table of Contents. In these illustrations you will find the instructions indicating which parts require specified tightening torque, oil, grease or a locking agent during assembly.

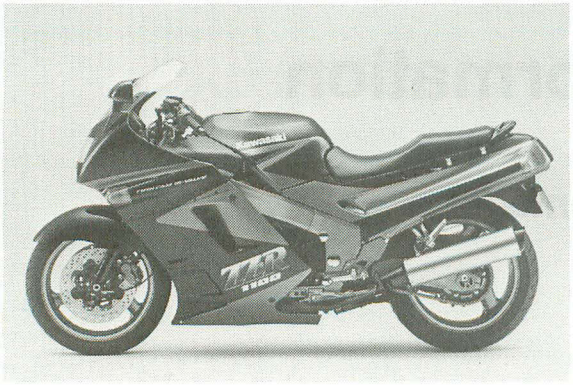
General Information

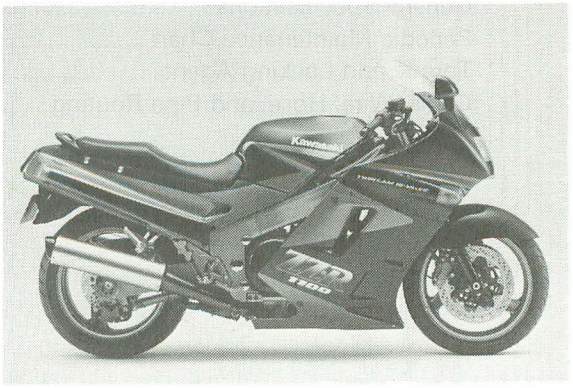
Table of Contents

* : Refer to Base Manual

Model Identification

ZX1100-C1





ZX1100-C2

General Specifications

Item		ZX1100-C1, C2
Dimensions:		
Overall length		2 165 mm, (G)(I)(N)(S)(Sw)(W) 2 175 mm
Overall width		720 mm
Overall height		1 210 mm
Wheelbase		1 480 mm
Road clearance		110 mm
Seat height		780 mm
Dry weight		228 kg, (Cal) 228.5 kg
Curb weight:	Front	127 kg, (Cal) 127.5 kg
	Rear	133 kg
Fuel tank capacity		21.0 L
Performance:		
Minimum turning radius		3.0 m
Engine:		
Type		4-stroke, DOHC, 4-cylinder
Cooling system		Liquid-cooled
Bore and stroke		76.0 x 58.0 mm
Displacement		1052 mL
Compression ratio		11.0
Maximum horsepower		108 kW (147 PS) @10 500 r/min (rpm), (AS) 73.6 kW (100 PS) @9 000 r/min (rpm), (F) 75.1 kW (–) @8 700 r/min (rpm)(UTAC'S norm), (S) 55 kW (75 PS) @6 000 r/min (rpm), (Sw) 66.9 kW (91 PS) @9 000 r/min (rpm), (U) –, (UK) 91.9 kW (–) @9 500 r/min (rpm)(ISO4106), (W) 73.6 kW (100 PS) @9 000 r/min (rpm)(DIN)
Maximum torque		110 N-m (11.2 kg-m, 81 ft-lb) @8 500 r/min (rpm), (AS) 88 N-m (9.0 kg-m, 65 ft-lb) @4 800 r/min (rpm), (F)(U)(UK) –, (S) 90 N-m (9.2 kg-m, 67 ft-lb) @5 500 r/min (rpm), (Sw) 85 N-m (8.7 kg-m, 63 ft-lb) @4 800 r/min (rpm), (W) 88 N-m (9.0 kg-m, 65 ft-lb) @4 800 r/min (rpm)(DIN)
Carburetion system		Carburetors, Keihin CVKD40 x 4
Starting system		Electric starter
Ignition system		Battery and coil (transistorized)
Timing advance		Electronically advanced
Ignition timing		From 10° BTDC @1 000 r/min (rpm) to 40° BTDC @6 000 r/min (rpm), (Cal) From 7.5° BTDC @1 200 r/min (rpm) to 40° BTDC @6 000 r/min (rpm), (F)(U) From 7.5° BTDC @1 000 r/min (rpm) to 40° BTDC @6 000 r/min (rpm), (AS)(S) From 5° BTDC @1 300 r/min (rpm) to 37.5° BTDC @6 000 r/min (rpm)

Item		ZX1100-C1, C2
Spark plug		NGK CR9E or ND U27ESR-N, (U) NGK C9E or ND U27ES-N
Cylinder numbering method		Left to right, 1-2-3-4
Firing order		1-2-4-3
Valve timing:		
Inlet	Open	40° BTDC
	Close	70° ABDC
	Duration	290°
Exhaust	Open	63° BBDC
	Close	43° ATDC
	Duration	286°
Lubrication system		Forced lubrication (wet sump with cooler)
Engine oil:		
Grade		SE or SF class
Viscosity		SAE 10W-40, 10W-50, 20W-40, 20W-50
Capacity		3.5 L
Drive Train:		
Primary reduction system:		
Type		Gear
Reduction ratio		1.637 (95/58)
Clutch type		Wet multi disc
Transmission:		
Type		6-speed, constant mesh, return shift
Gear ratios:	1st	2.800 (42/15)
	2nd	2.000 (38/19)
	3rd	1.590 (35/22)
	4th	1.333 (32/24)
	5th	1.153 (30/26)
	6th	1.035 (29/28)
Final drive system:		
Type		Chain drive
Reduction ratio		2.647 (45/17)
Overall drive ratio		4.490 @Top gear
Frame:		
Type		Tubular, double cradle
Caster (rake angle)		26°
Trail		103 mm
Front tire:	Type	Tubeless
	Size	120/70 VR17-V290
Rear tire:	Type	Tubeless
	Size	170/60 VR17-V290
Front suspension:	Type	Telescopic fork
	Wheel travel	125 mm
Rear suspension:	Type	Swing arm (uni-trak)
	Wheel travel	120 mm
Brake type:	Front	Dual disc
	Rear	Single disc

Item		ZX1100-C1, C2
Electrical Equipment:		
Battery		12 V 14 Ah
Headlight:	Type	Semi-sealed beam
	Bulb	12 V 60/55 W (quartz-halogen)
Tail/brake light		12 V 5/21 W x 2, (C)(SA)(U) 12 V 8/27 W x 2
Alternator:	Type	Three-phase AC
	Rated output	28.6 A @6 000 r/min (rpm), 14 V

Specifications subject to change without notice, and may not apply to every country.

(AS): Austria Model
(C) : Canada Model
(Cal): California Model
(F) : France Model
(G) : Greece Model
(I) : Italy Model
(N) : Norway Model
(S) : Switzerland Model
(SA): South Africa Model
(Sw): Sweden Model
(U) : US Model
(UK): UK Model
(W) : West Germany Model

Periodic Maintenance Chart

The scheduled maintenance must be done in accordance with this chart to keep the motorcycle in good running condition. **The initial maintenance is vitally important and must not be neglected.**

OPERATION \ FREQUENCY	Whichever comes first → / Every ↓	*ODOMETER READING						
		800 km	5,000 km	10,000 km	15,000 km	20,000 km	25,000 km	30,000 km
Sparl plug – clean			•	•	•	•	•	•
Spark plug – check †			•	•	•	•	•	•
Valve clearance – check †		•		•		•		•
Air suction valve (S), (U) – check †			•	•	•	•	•	•
Air cleaner element and air vent filter – clean		•		•				•
Air cleaner element and air vent filter – replace	5 cleanings					•		
Throttle grip play – check †		•		•		•		•
Idle speed – check †		•	•	•	•	•	•	•
Engine vacuum synchronization – check †		•	•	•	•	•	•	•
Fuel system – check †				•		•		•
Coolant – change	2 years							•
Evaporative emission control system (Cal) – check †		•	•	•	•	•	•	•
Engine oil – change	year	•		•		•		•
Oil filter – replace		•		•		•		•
Radiator hoses, connections – check †	year	•		•		•		•
Fuel Filter – replace			•		•		•	
Fuel hose – replace	4 years							
Clutch fluid level – check †	month	•	•	•	•	•	•	•
Clutch fluid – change	2 years					•		
Clutch hose and pipe – replace	4 years							
Clutch master cylinder cup and dust seal – replace	2 years							
Clutch slave cylinder piston seal – replace	2 years							
Drive chain wear – check †			•	•	•	•	•	•
Drive chain – lubricate	300 km							
Drive chain slack – check †	800 km							
Brake pad wear – check †			•	•	•	•	•	•
Brake fluid level – check †	month	•	•	•	•	•	•	•
Brake fluid – change	2 years					•		
Brake hose – replace	4 years							

OPERATION \ FREQUENCY	Whichever comes first → / Every ↓	*ODOMETER READING							
		800 km	5,000 km	10,000 km	15,000 km	20,000 km	25,000 km	30,000 km	
Brake master cylinder cup and dust seal — replace	2 years								
Caliper piston seal and dust seal — replace	2 years								
Brake light switch — check †		•	•	•	•	•	•	•	
Steering — check †		•	•	•	•	•	•	•	
Steering stem bearing — lubricate	2 years					•			
Front fork oil — change								•	
Tire wear — check †			•	•	•	•	•	•	
Swing arm pivot, uni-trak linkage — lubricate				•		•		•	
Battery electrolyte level — check †	month	•	•	•	•	•	•	•	
General lubrication — perform			•	•	•	•	•	•	
Nut, bolt, and fastener tightness — check †		•		•		•		•	

* : For higher odometer readings, repeat at the frequency interval established here.
† : Replace, add, adjust, clean, or torque if necessary.
(Cal): California Model only
(S) : Switzerland Model only
(U) : US Model only

Torque and Locking Agent

The following tables list the tightening torque for the major fasteners, and the parts requiring use of a non-permanent locking agent or liquid gasket.

Letters used in the "Remarks" column mean:
L : Apply a non-permanent locking agent to the threads.
O : Apply an oil to the threads, seated surface, or washer.
S : Tighten the fasteners following the specified sequence.
SS : Apply silicone sealant to the threads.

Fastener	Torque			Remarks
	N-m	kg-m	ft-lb	
Cooling System:				
Fan switch	18	1.8	13.0	
Water temperature sensor	15	1.5	11.0	SS
Bleed valve	7.8	0.80	69 in-lb	
Water pump cover bolts	9.8	1.0	87 in-lb	
Water pump drain plug	9.8	1.0	87 in-lb	
Engine Top End:				
Camshaft cap bolts	12	1.2	104 in-lb	S
Rocker shaft end bolts	25	2.5	18.0	
Oil hose fitting	29	3.0	22	
Oil hose banjo bolt	25	2.5	18.0	
Carburetor holder bolts	12	1.2	104 in-lb	L
Cylinder head bolts: 11 mm dia.	51	5.2	38	O, S
10 mm dia.	39	4.0	29	O, S
6 mm dia.	9.8	1.0	87 in-lb	
Cylinder bolts	15	1.5	11.0	
Upper chain guide mounting bolts	–	–	–	L
Rear chain guide mounting bolt	20	2.0	14.5	L
Chain tensioner mounting bolts	9.8	1.0	87 in-lb	
Camshaft sprocket bolts	15	1.5	11.0	L
Clutch:				
Clutch hose banjo bolts	25	2.5	18.0	
Clutch pipe nipple	18	1.8	13.0	
Clutch lever pivot nut	5.9	0.60	52 in-lb	
Clutch master cylinder clamp bolts	11	1.1	95 in-lb	S
Clutch slave cylinder bolts	–	–	–	L(2)
Bleed valve	7.8	0.80	69 in-lb	
Right cover bolts	–	–	–	L(4)
Right cover damper bolts	–	–	–	L
Clutch spring bolts	11	1.1	95 in-lb	
Clutch hub nut	130	13.5	98	
Engine Lubrication System:				
Oil hose banjo bolts (14 mm dia.):				
Cooler side	25	2.5	18.0	
Oil pan side	34	3.5	25	
Oil hose banjo bolt (8 mm dia.)	15	1.5	11.0	
Oil pan bolts	–	–	–	L(4)
Oil drain plugs	29	3.0	22	
Oil pressure switch	15	1.5	11.0	SS
Oil pan plug	20	2.0	14.5	L

Fastener	Torque			Remarks
	N-m	kg-m	ft-lb	
Crankcase main oil passage plug	18	1.8	13.0	
Crankcase plug	18	1.8	13.0	
Oil pipe banjo bolts(12 mm dia.)	25	2.5	18.0	
Oil pump gear holder screws	–	–	–	L
Oil pump mounting bolts	12	1.2	104 in-lb	L
Oil filter bolt	20	2.0	14.5	
Engine Removal/Installation:				
Engine mounting nuts	44	4.5	33	
Down tube mounting bolts	44	4.5	33	
Crankshaft/Transmission:				
Crankshaft cap bolts	38	3.9	28	
Balancer shaft guide pin plate bolt	–	–	–	L
Alternator shaft chain tensioner bolts	–	–	–	L
Crankcase bolts:				
9 mm dia.	32	3.3	24	S
8 mm dia.	27	2.8	20	
7 mm dia.	18	1.8	13.0	
6 mm dia.	15	1.5	11.0	
Connecting rod big end cap nuts				See p.8-8
Alternator shaft chain sprocket bolt	25	2.5	18.0	
Alternator shaft nut	59	6.0	43	
Alternator shaft bolt	25	2.5	18.0	
One-way clutch bolts	12	1.2	104 in-lb	L
Shift drum bearing holder bolts	–	–	–	L
External shift mechanism return spring pin	–	–	–	L
External shift mechanism cover bolts	9.8	1.0	87 in-lb	L(4)
Neutral switch	15	1.5	11.0	
Wheels/Tires:				
Front axle nut	110	11.0	80	
Front axle clamp bolts	20	2.0	14.5	
Rear axle nut	110	11.0	80	
Final Drive:				
Engine sprocket nut	98	10.0	72	
Engine sprocket cover damper bolts	–	–	–	L
Rear sprocket nuts	74	7.5	54	
Rear sprocket studs	–	–	–	L
Chain adjuster clamp bolts	39	4.0	29	
Brakes:				
Brake lever pivot nut	5.9	0.60	52 in-lb	
Front master cylinder clamp bolts	11	1.1	95 in-lb	S
Brake hose banjo bolts	25	2.5	18.0	
Bleed valves	7.8	0.80	69 in-lb	
Caliper mounting bolts	34	3.5	25	
Front caliper assembly bolts	21	2.1	15.0	
Brake disc mounting bolts	23	2.3	16.5	
Brake pedal pivot bolt	8.8	0.90	78 in-lb	
Rear master cylinder mounting bolts	23	2.3	16.5	
Reservoir hose fitting	16	1.6	11.5	
Push rod nut	18	1.8	13.0	
Torque link bolt/nut	25	2.5	18.0	

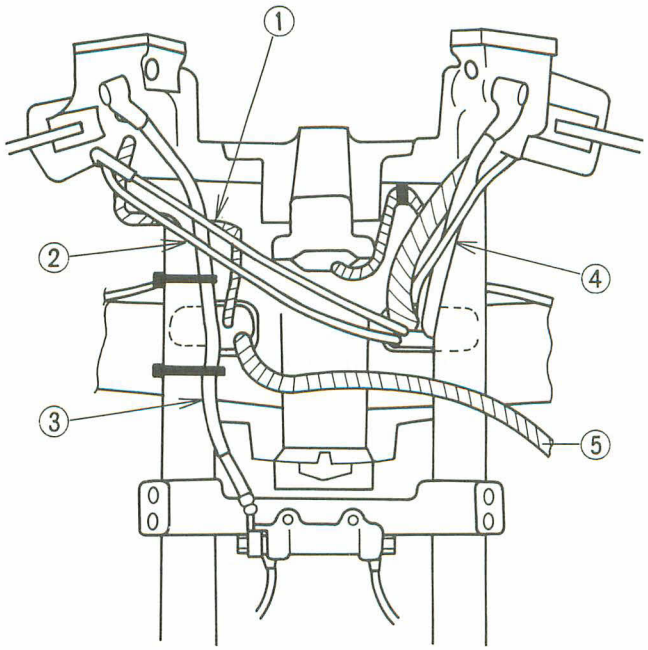
Fastener	Torque			Remarks
	N-m	kg-m	ft-lb	
Suspension:				
Front fork top plugs	23	2.3	16.5	
Front fork clamp bolts (Upper)	28	2.9	21	
Front fork clamp nuts (Lower)	21	2.1	15.0	
Front fork bottom Allen bolts	61	6.2	45	L
Front axle clamp bolts	20	2.0	14.5	
Rear shock absorber mounting nuts	59	6.0	43	
Swing arm pivot nut	88	9.0	65	
Rocker arm pivot nut	59	6.0	43	
Tie-rod nuts	59	6.0	43	
Steering:				
Handlebar mounting bolts	29	3.0	22	L
Handlebar weight bolts	–	–	–	L
Handlebar holder bolts	20	2.0	14.5	
Steering stem head nut	39	4.0	29	
Steering stem nut	4.9	0.50	43 in-lb	
Frame:				
Side stand switch screws	–	–	–	L
Center stand spring hook bolts	–	–	–	L
Electrical System:				
Spark plugs	14	1.4	10.0	
Pickup coil cover bolts	–	–	–	L(2)
Timing rotor bolt	25	2.5	18.0	
Pickup coil holder bolts	–	–	–	L
Alternator mounting bolts	25	2.5	18.0	L
Alternator coupling bolts	9.8	1.0	87 in-lb	
Alternator cover nuts	4.4	0.45	39 in-lb	
Alternator cover studs	8.8	0.90	78 in-lb	

The table below, relating tightening torque to thread diameter, lists the basic torque for the bolts and nuts. Use this table for only the bolts and nuts which do not require a specific torque value. All of the values are for use with dry solvent-cleaned threads.

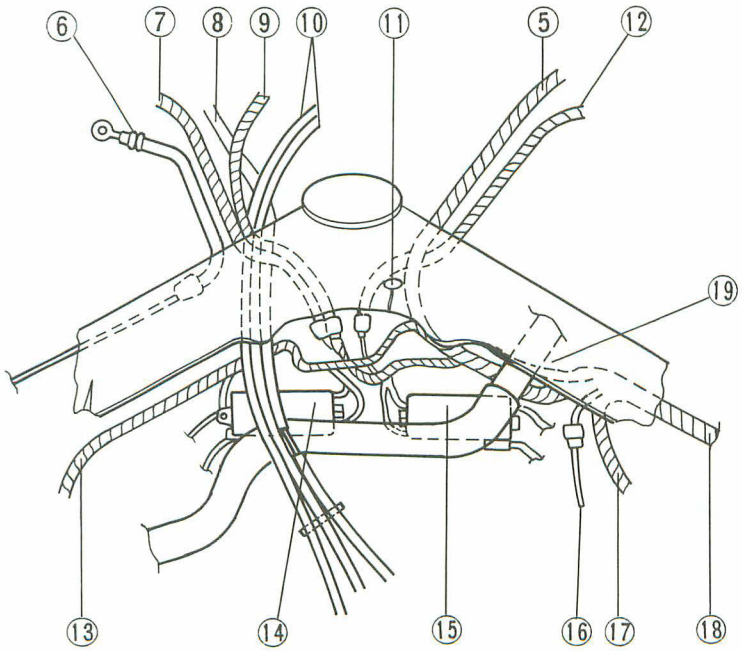
Basic Torque for General Fasteners

Threads dia.	Torque		
(mm)	N-m	kg-m	ft-lb
5	3.4 ~ 4.9	0.35 ~ 0.50	30 ~ 43 in-lb
6	5.9 ~ 7.8	0.60 ~ 0.80	52 ~ 69 in-lb
8	14 ~ 19	1.4 ~ 1.9	10.0 ~ 13.5
10	25 ~ 34	2.6 ~ 3.5	19.0 ~ 25.0
12	44 ~ 61	4.5 ~ 6.2	33 ~ 45
14	73 ~ 98	7.4 ~ 10.0	54 ~ 72
16	115 ~ 155	11.5 ~ 16.0	83 ~ 115
18	165 ~ 225	17.0 ~ 23.0	125 ~ 165
20	225 ~ 325	23 ~ 33	165 ~ 240

Cable, Wire, Hose, and Pipe Routing

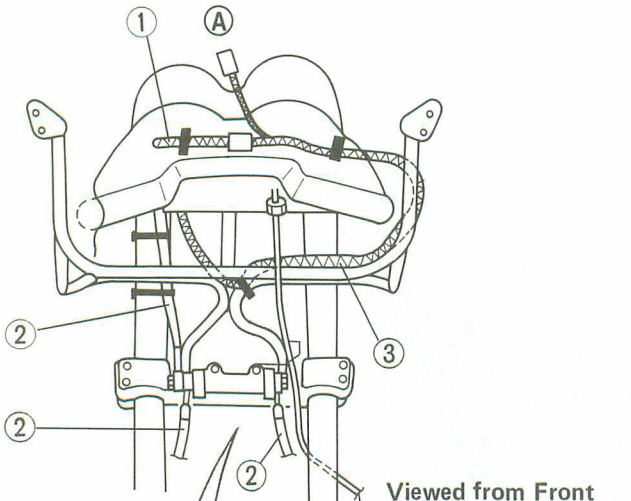


Viewed from Front

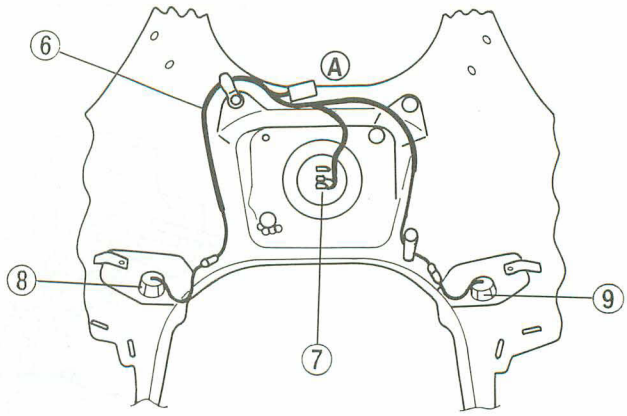


Viewed from Top

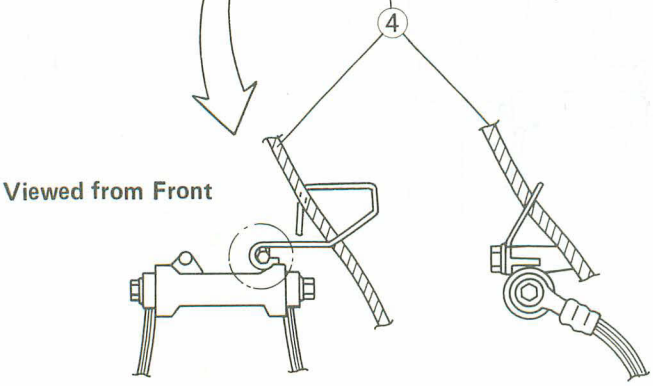
1. Run RH switch leads between brake hose and fork leg.
2. Run brake hose behind throttle cables.
3. Clamp brake hose on fork leg inside.
4. Run clutch hose behind choke cable.
5. Main Harness (to Front Harness)
6. Clutch Hose
7. LH Switch Leads
8. Choke Cable
9. Ignition Switch Leads
10. Throttle Cables
11. Ground Lead
12. RH Switch Leads
13. LH Horn and Radiator Fan Switch Leads
14. Ignition Coil (#1, 4)
15. Ignition Coil (#2, 3)
16. Radiator Fan Leads
17. RH Horn and Water Temperature Sensor Leads
18. Main Harness
19. Run main harness under water hose.



Viewed from Front

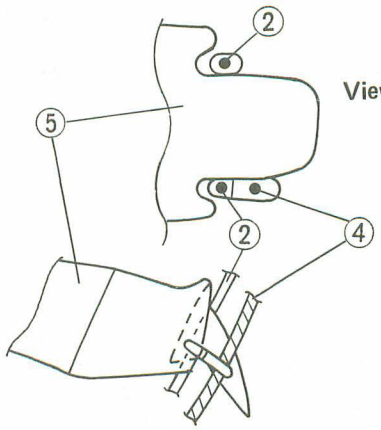


Inside of Upper Fairing



Viewed from Front

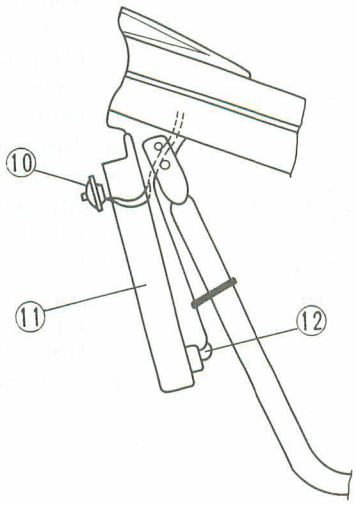
Viewed from Left



Viewed from Top

Viewed from Left

1. Meter Leads
2. Brake Hose
3. Main Harness (to Front Harness)
4. Speedometer Cable
5. Front Fender
6. Front Harness
7. Headlight
8. Left Turn Signal Light
9. Right Turn Signal Light
10. LH Horn
11. Radiator
12. Radiator Fan Switch
13. Water Temperature Sensor
14. RH Horn



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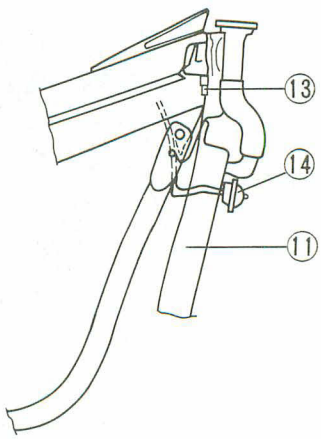

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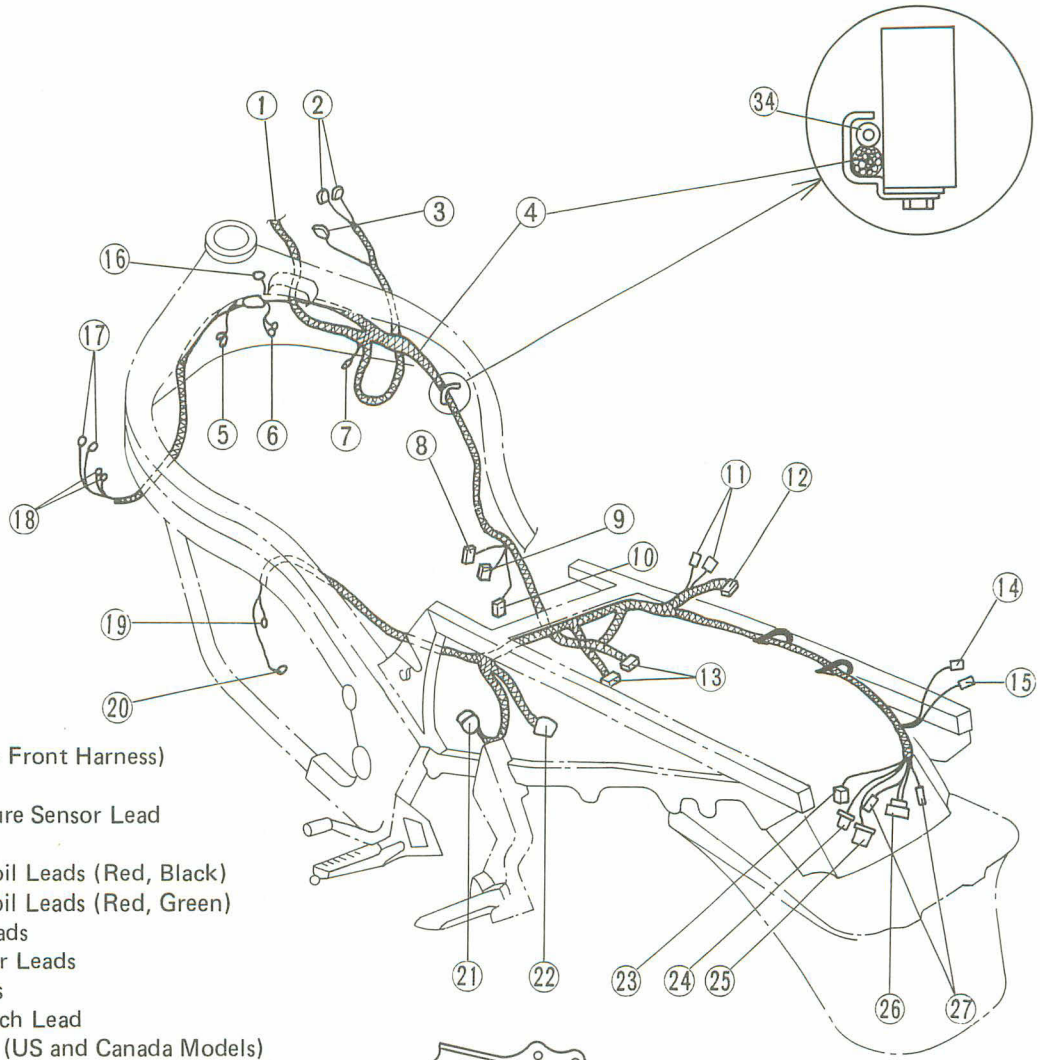
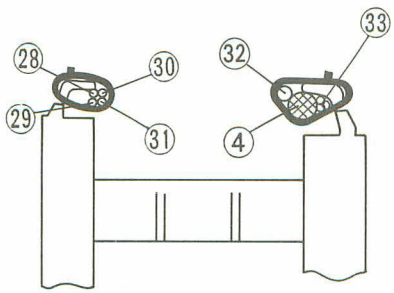


1. Main Harness (to Front Harness)
2. RH Horn Leads
3. Water Temperature Sensor Lead
4. Main Harness
5. #1, 4 Ignition Coil Leads (Red, Black)
6. #2, 3 Ignition Coil Leads (Red, Green)
7. Radiator Fan Leads
8. Fuel Level Sensor Leads
9. Fuel Pump Leads
10. Oil Pressure Switch Lead
11. Accessory Leads (US and Canada Models)
12. Igniter Leads
13. Junction Box Leads



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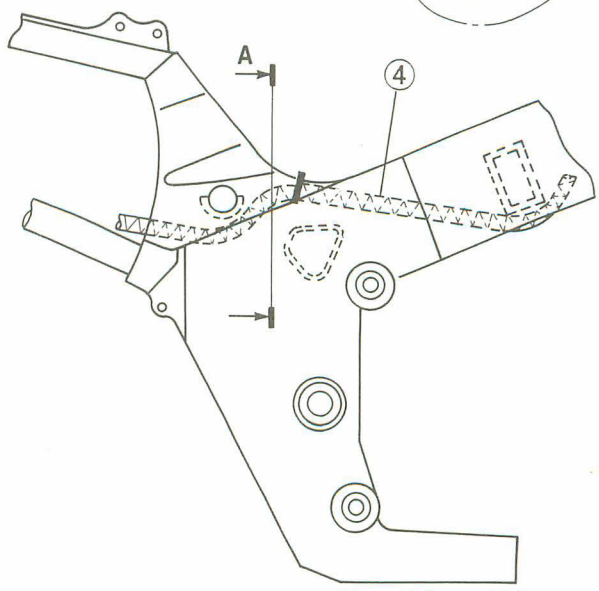
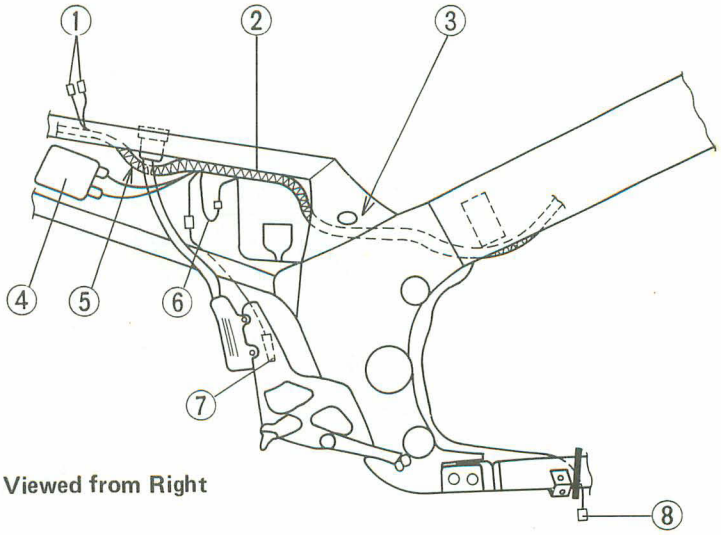


Viewed from Right

14. Diode Leads (US and Canada Models)
15. Diode Leads (White/Yellow, Blue/Red)
16. Ground Lead
17. LH Horn Leads
18. Radiator Fan Switch Leads
19. Neutral Switch Lead
20. Side Stand Switch Lead
21. Starter Relay Leads
22. Turn Signal Relay Leads
23. Fuel Pump Relay Leads
24. Fuel Level Warning Light Relay Leads
25. Fuel Level Warning Circuit Relay Leads
26. Tail/Brake Light Leads
27. Turn Signal Light Leads
28. Alternator Leads
29. Starter Motor Lead
30. Pickup Coil Leads
31. Neutral and Side Stand Switch Leads
32. Battery Ground Lead
33. Hoses for Evaporative Emission Control System (California Model)
34. Reserve Tank Vent Hose

1. Accessory Leads (US and Canada Models)
2. Main Harness
3. Run harness under fuel tank bolt guide.
4. Igniter
5. Run harness outside of brake hose.
6. Battery (–) Lead
7. Rear Brake Light Switch
8. Oil Pressure Switch Lead
9. Clutch Hose and Pipe
10. Carburetor Idle Adjusting Screw
11. Neutral Switch
12. Side Stand Switch
13. Battery (+) Lead
14. Turn Signal Relay
15. Starter Motor Lead
16. Starter Relay
17. Engine Breather Cover
18. Battery Ground Lead
19. Alternator, Pickup Coil, Neutral Switch, and Side Stand Switch Leads
20. Junction Box
21. Turn Signal Relay Leads
22. Yellow Lead (US and Canada Models)



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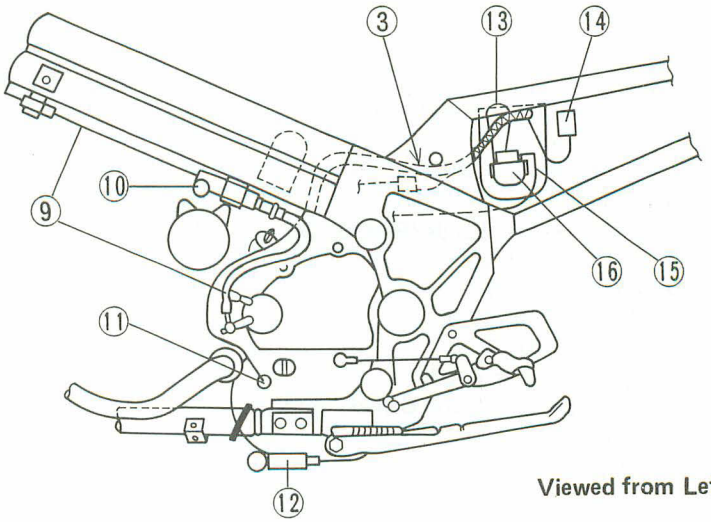

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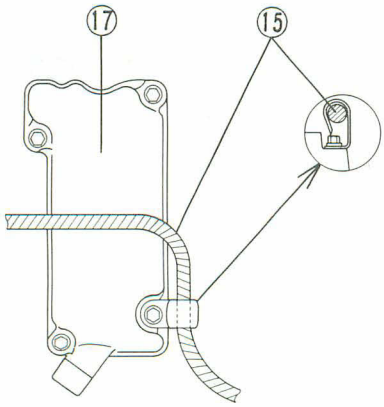

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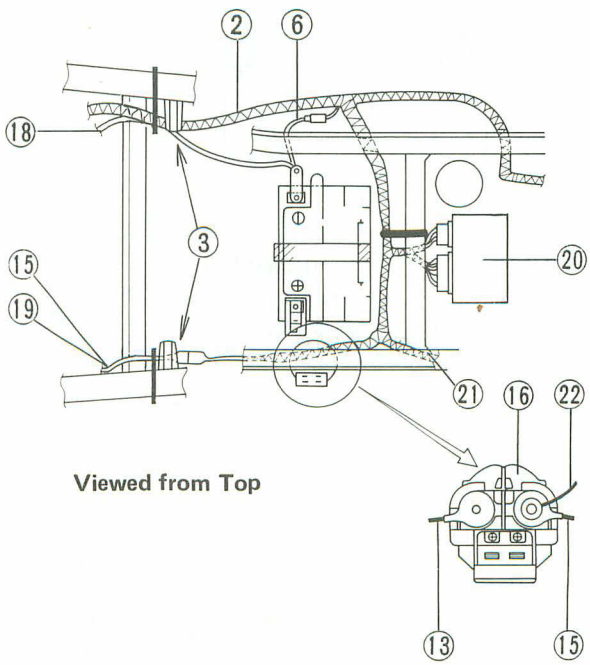
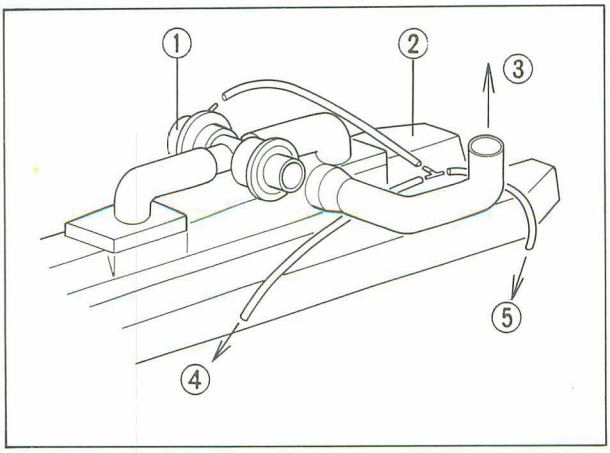
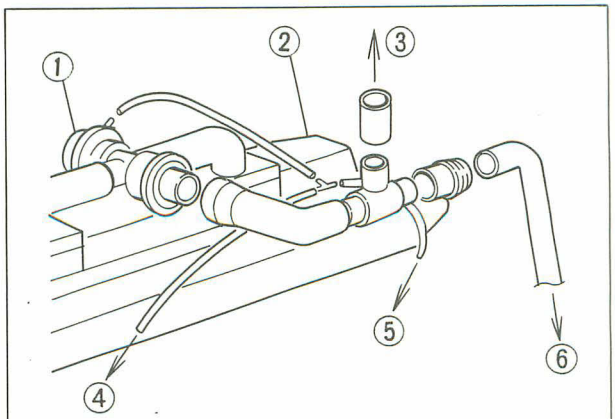


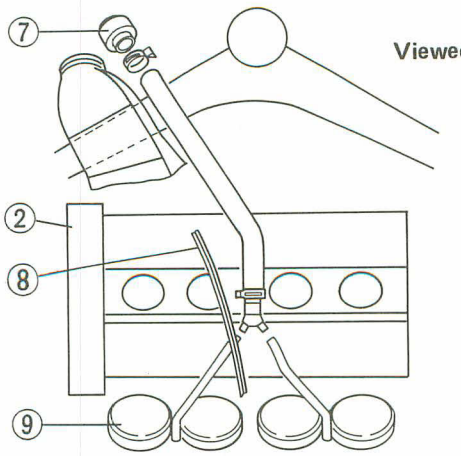
Viewed from Top

Switzerland and US Models



California Model





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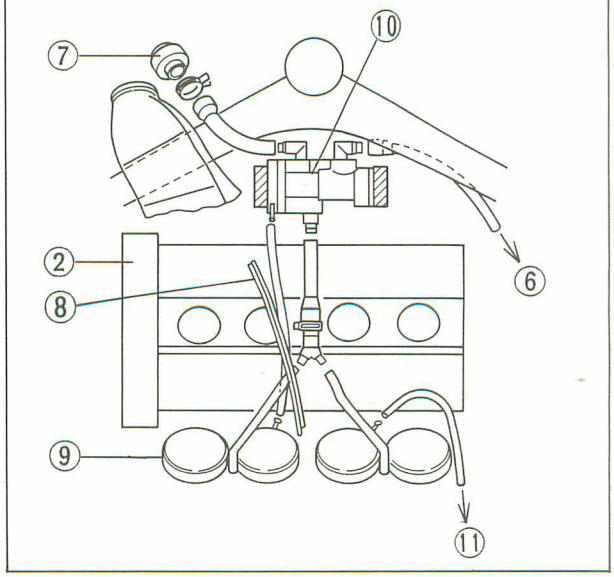
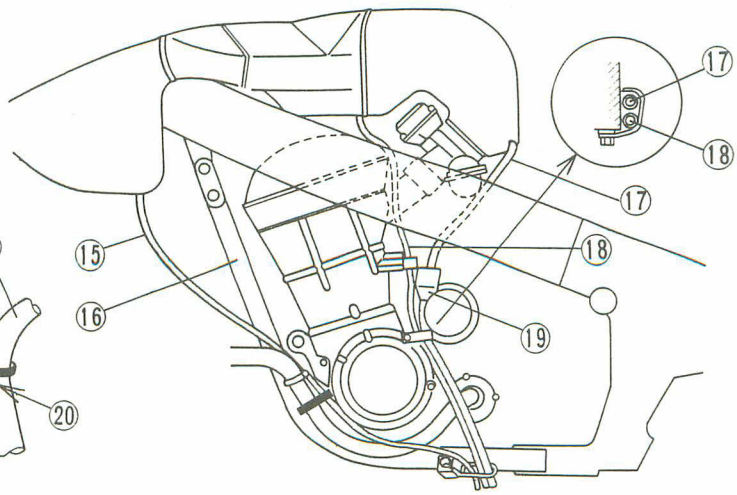
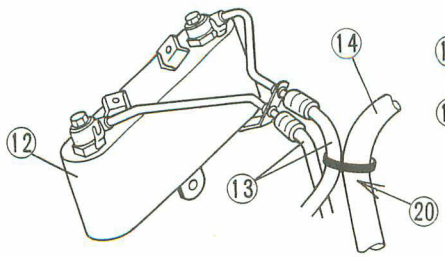
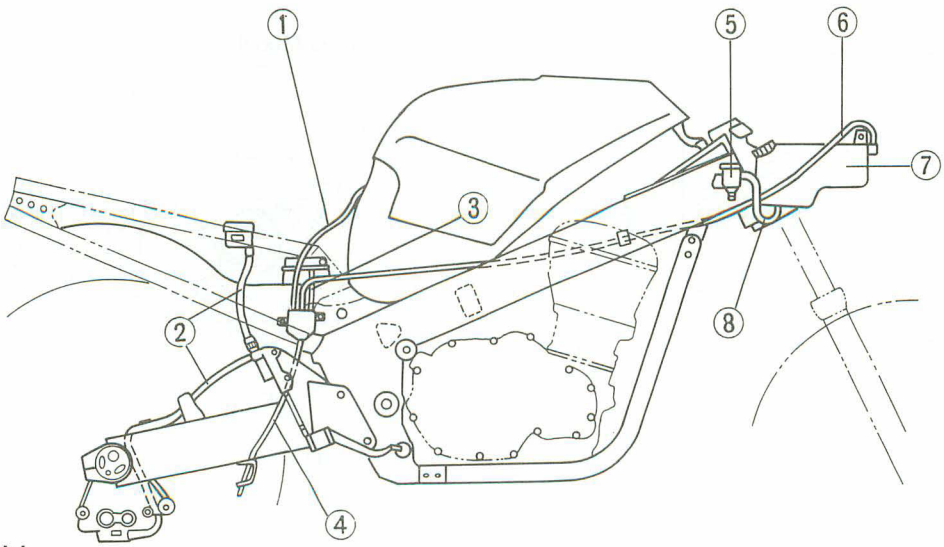


1. Vacuum Switch Valve
2. Cylinder Head Cover
3. Air Cleaner Housing
4. #1 Carburetor Holder
5. #4 Carburetor Holder
6. Canister
7. Air Vent Filter

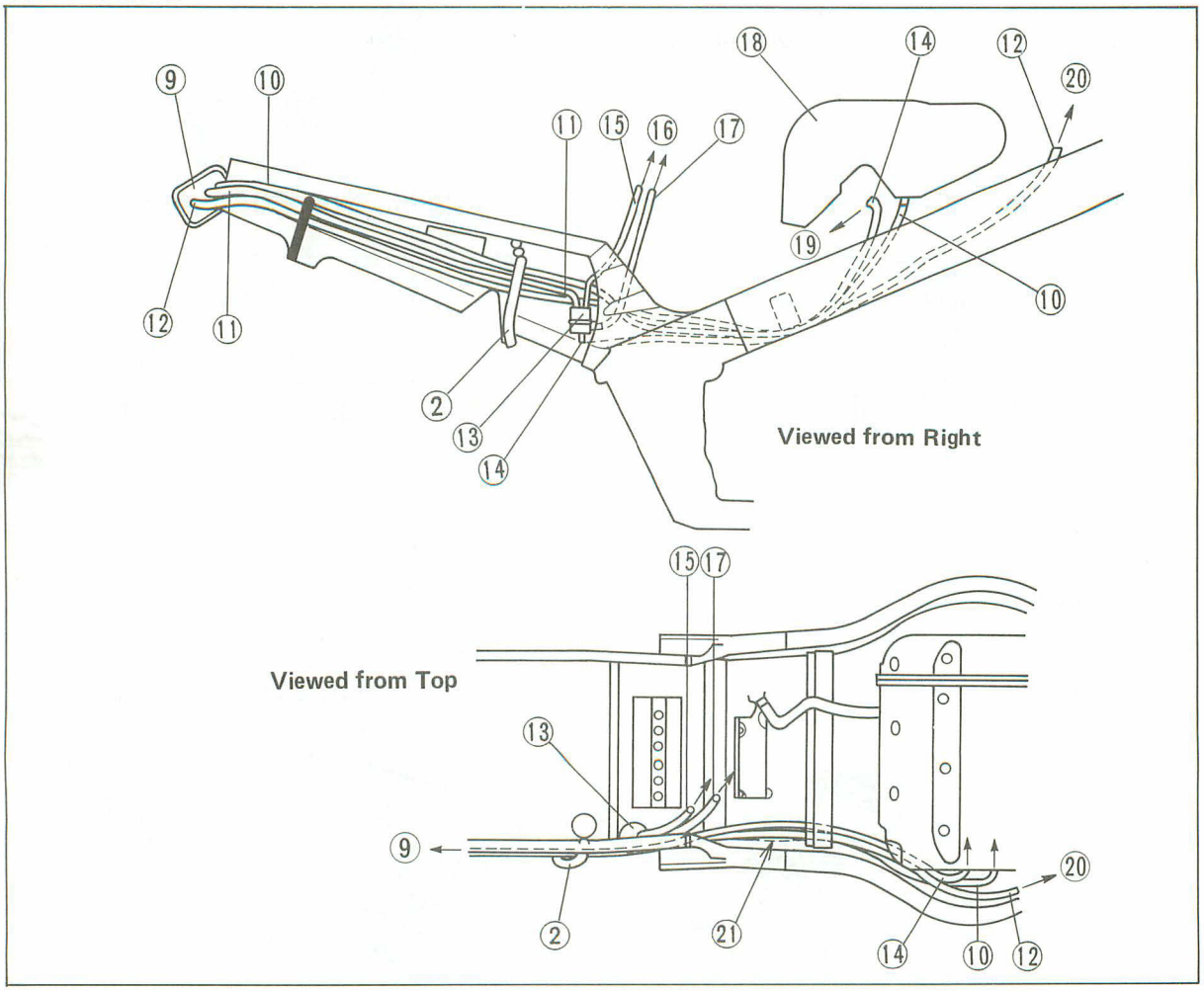




8. Throttle Cables
9. Carburetors
10. Vacuum Valve
11. Separator
12. Oil Cooler
13. Oil Hoses
14. RH Down Tube
15. Air Duct Drain Hose
16. LH Down Tube
17. Air Cleaner Drain Hose
18. Air Cleaner Drain Hose
19. Reservoir
20. Be careful not to over-tighten.



California Model



1. Fuel Tank Drain Hose
2. Brake Hoses
3. Battery Vent Hose
4. Drain Hose
5. Radiator Cap
6. Reserve Tank Vent Hose
7. Reserve Tank
8. Reserve Tank Hose
9. Canister
10. Hose (Green)
11. Hose (Blue)
12. Hose (Yellow)
13. Separator
14. Hose (White)
15. Hose (Blue)
16. Fuel Tank
17. Hose (Red)
18. Air Cleaner
19. Carburetors
20. Vacuum Switch
21. Run hoses alongside of frame to avoid pinching with fuel tank.

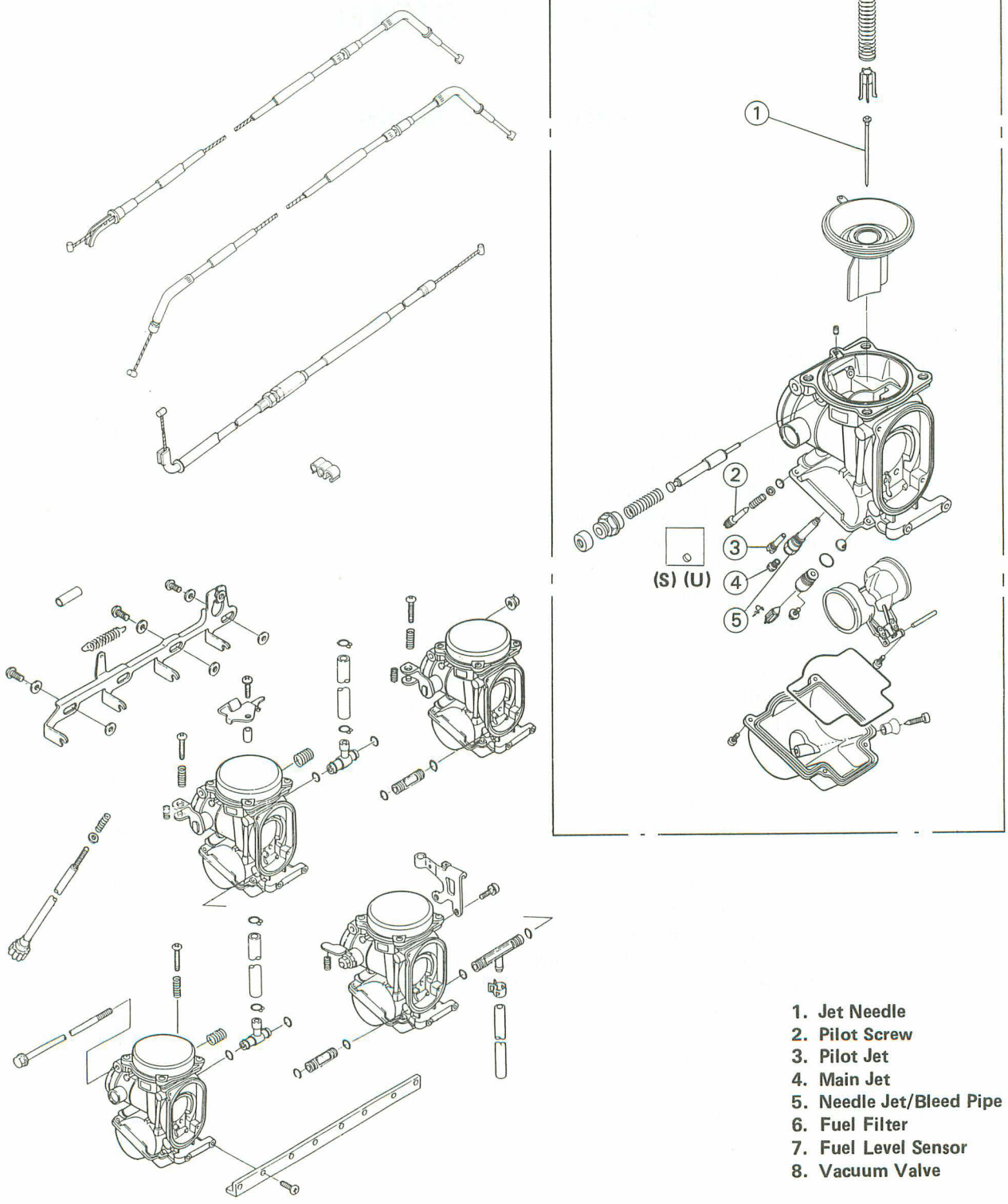
2

Fuel System

Table of Contents

* : Refer to Base Manual

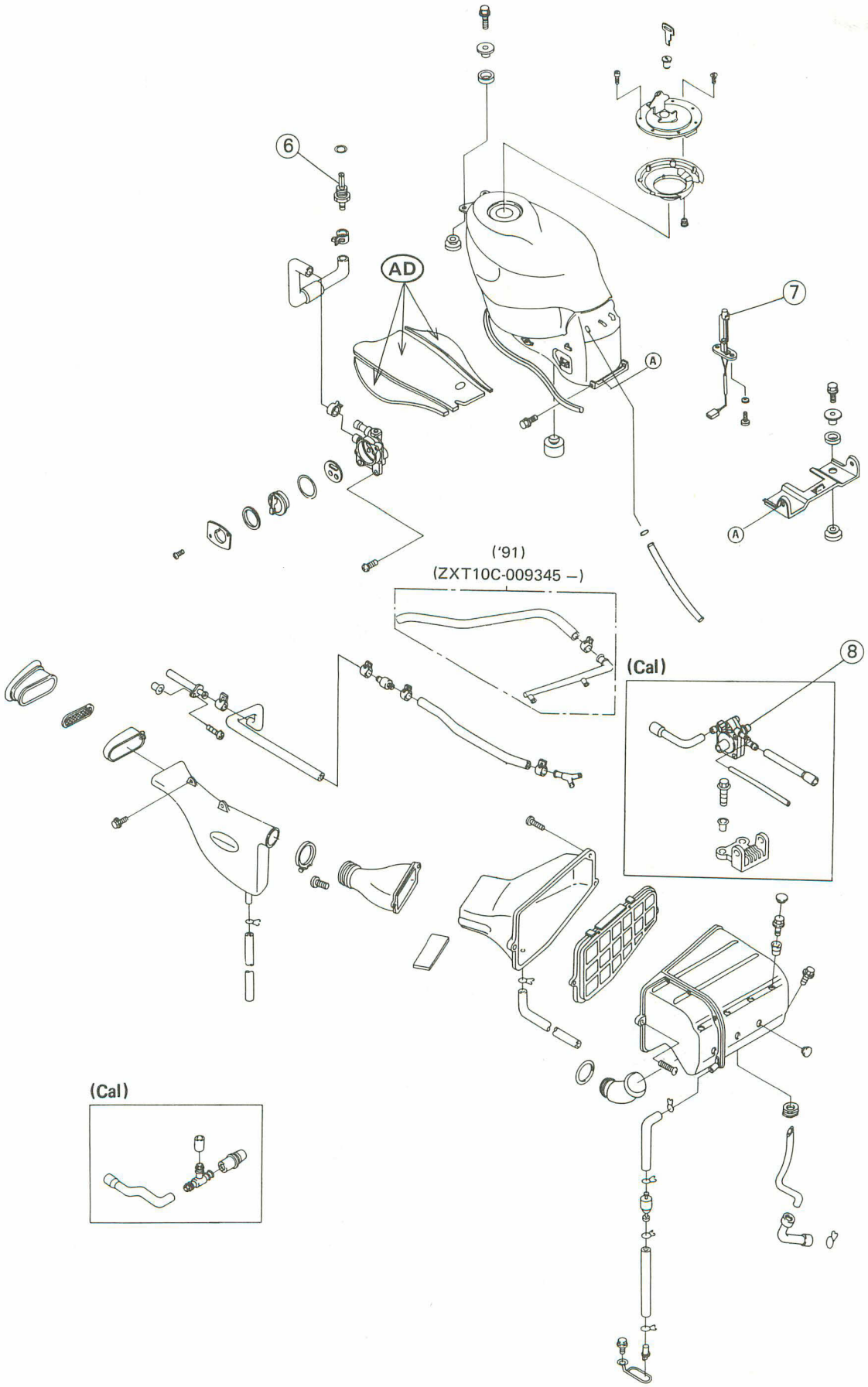
Exploded View

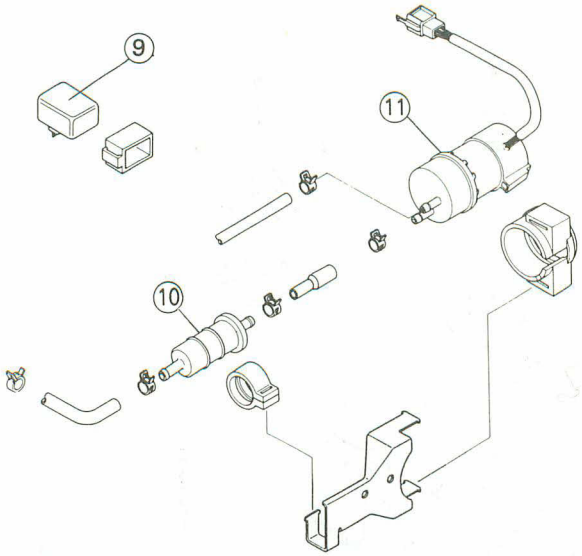


1. Jet Needle
2. Pilot Screw
3. Pilot Jet
4. Main Jet
5. Needle Jet/Bleed Pipe
6. Fuel Filter
7. Fuel Level Sensor
8. Vacuum Valve

(Cal): California Model
(S): Switzerland Model
(U): US Model

AD: Apply adhesive agent.

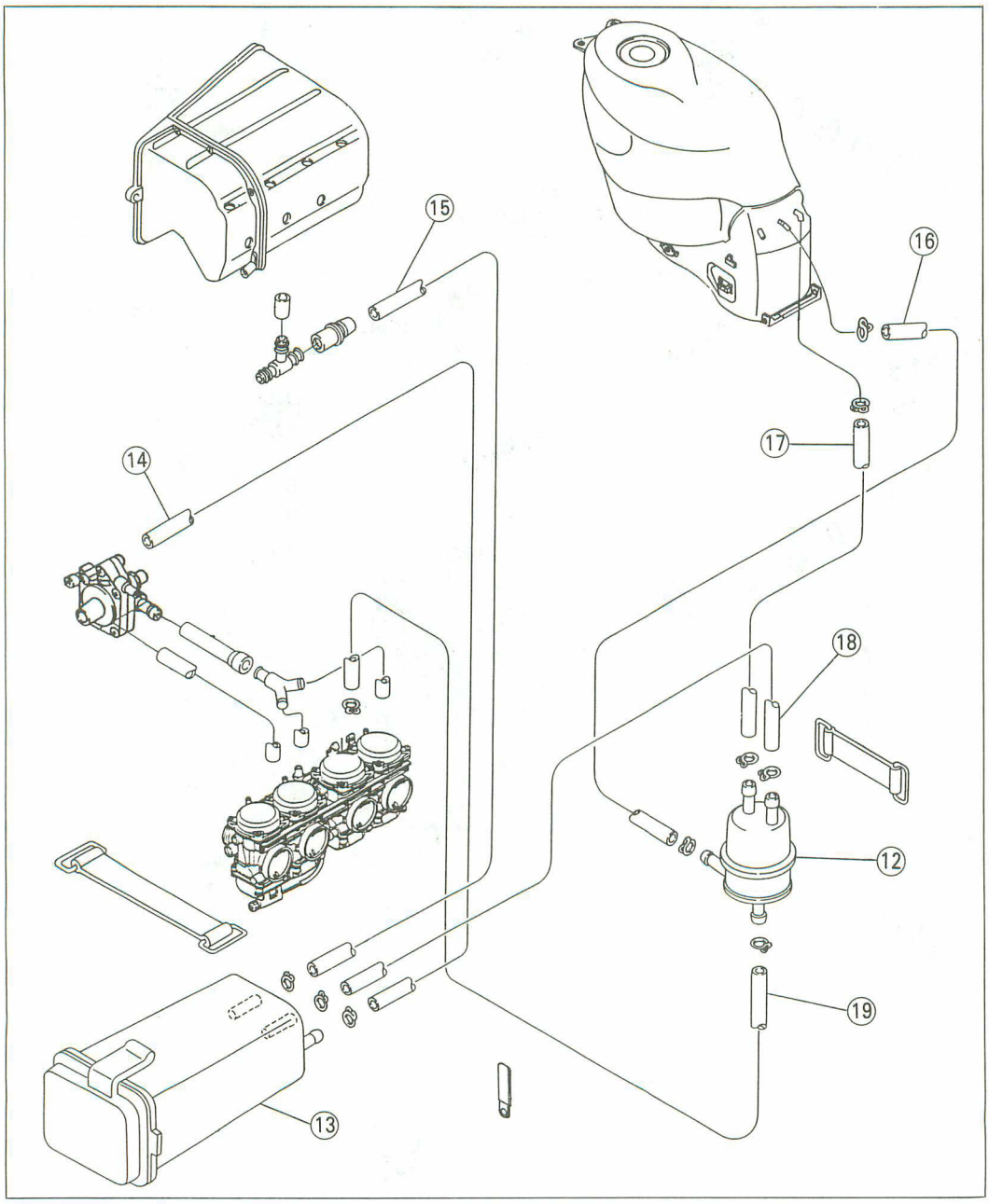

6
AD
7
A
('91)
(ZXT10C-009345 –)
(Cal)
8
(Cal)



9. Fuel Pump Relay
10. Fuel Filter
11. Fuel Pump
12. Separator
13. Canister
14. Hose (Yellow)
15. Hose (Green)
16. Hose (Red)
17. Hose (Blue)
18. Hose (Blue)
19. Hose (White)

(Cal): California Model

(Cal)



Specifications

Item	Standard
Throttle Grip:	
Throttle grip free play	2 ~ 3mm
Choke Cable:	
Choke cable free play	2 ~ 3mm
Carburetors:	
Make, type	Keihin, CVKD40
Main jet	155 [152]
Main air jet	70
Jet needle	N60U
Pilot jet	38 [35]
Pilot air jet	130
Starter jet	55
Pilot screw	2 turns out, (AS) (S) (U) –
Service fuel level	4.5 ± 1 mm below the mark
Float height	13 ± 2 mm
Idle speed	950 ~ 1 050 r/min (rpm), (S) 1 150 ~ 1 250 r/min (rpm)
Synchronization vacuum	Less than 2.7 kPa (2 cm Hg)

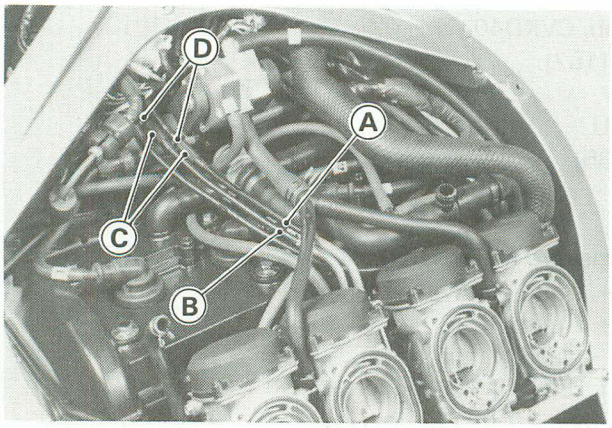
(AS) : Austria Model
(S) : Switzerland Model
(U) : US Model
[ ] : High Altitude (US only)

Throttle Grip and Cables

Throttle Cable Adjustment

Refer to the Base Manual, noting the following.

● Remove the following to adjust the throttle cables using the adjusters at the middle of cables.
Fuel Tank
Front Air Cleaner Housing

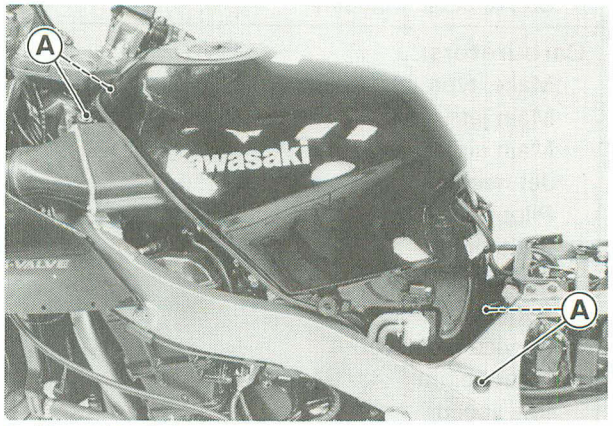


A. Accelerator Cable
B. Decelerator Cable
C. Adjusters
D. Locknuts

Fuel Tank and Fuel Level Sensor

Removal

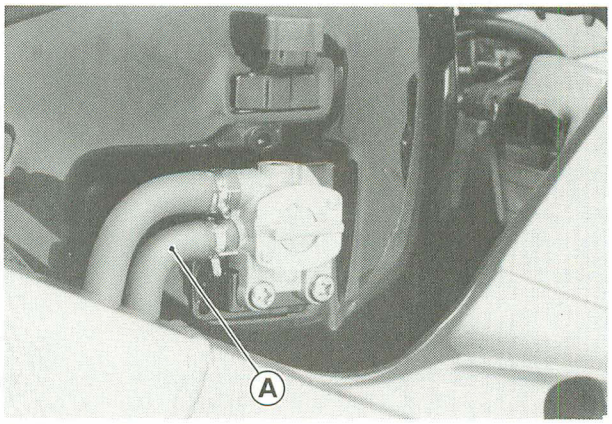
● Remove the following.
Inner Fairings (left and right)
Side Covers and Tail Cover
Fuel Tank Mounting Bolts



A. Mounting Bolts

Fuel Level Sensor Leads (disconnect)

○ Turn the fuel tap to the OFF position.
Hoses (disconnect)



A. Do not disconnect this hose.

⚠WARNING

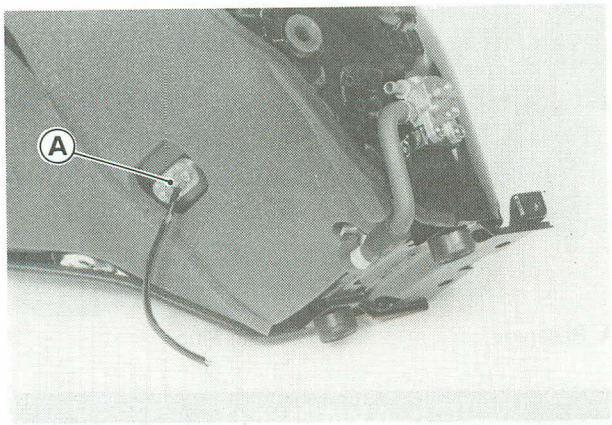
Gasoline is extremely flammable and can be explosive under certain conditions. Turn the ignition switch OFF. Do not smoke. Make sure the area is well ventilated and free from any source of flame or sparks; this includes any appliance with a pilot light.

⚠CAUTION

If gasoline, solvent, water or any other liquid enters the canister, the canister's vapor absorbing capacity is greatly reduced. If the canister does become contaminated replace it with a new one.

Fuel Tank

○To remove the fuel level sensor, drain the fuel tank.
Fuel Level Sensor



A. Fuel Level Sensor

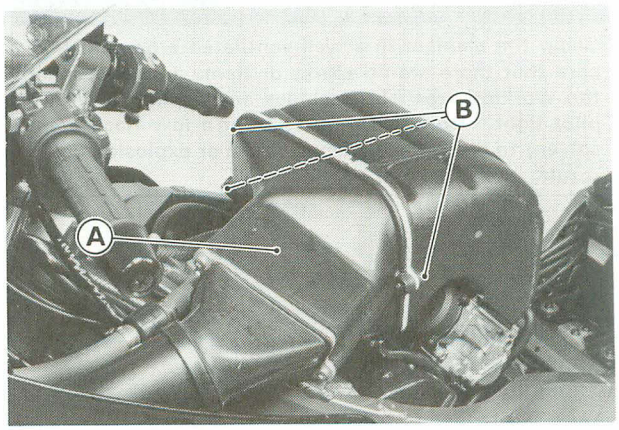
Air Cleaner

Air Cleaner Element Cleaning

NOTE

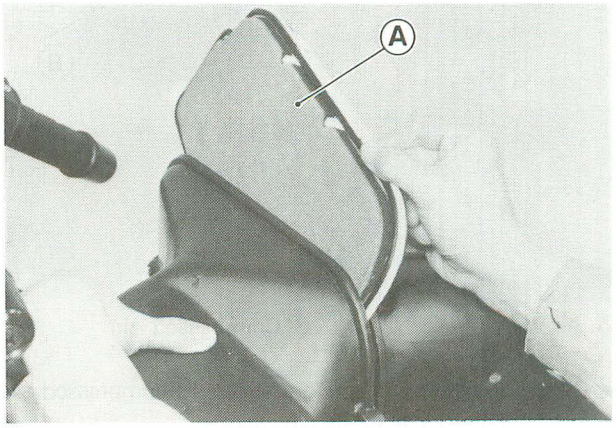
○*In dusty areas, the element should be cleaned more frequently than the recommended interval.*
○*After riding through rain or on muddy roads, the element should be cleaned immediately.*

●Remove the following.
Side Covers and Tail Cover
Fuel Tank
Front Air Cleaner Housing Screws (rear side)



A. Front Air Cleaner Housing
B. Remove these screws.

Air Cleaner Element



A. Air Cleaner Element

●Stuff the gap where the element was removed with a clean, lint-free towel to keep dirt or other foreign material from entering.

⚠WARNING

If dirt or dust is allowed to pass through into the carburetors, the throttle may become stuck, possibly causing accident.

⚠CAUTION

If dirt gets through into the engine, excessive engine wear and possibly engine damage will occur.

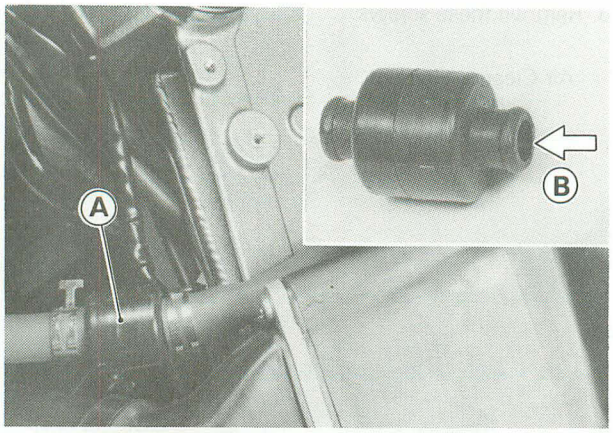
- Clean the element in a bath of a high flash-point solvent.
- Dry the element with compressed air or by shaking it.
- After cleaning, saturate the element with SE class SAE 30 motor oil.
- Press the element against a workbench to squeeze out the excess oil, then wrap it in a clean rag and squeeze it as dry as possible. Be careful not to deform the element frame and the expanded metal.

⚠WARNING

Clean the element in a well-ventilated area, and take care that there are no sparks or flame anywhere near the working area; this includes any appliance with a pilot light. Do not use gasoline or a low flash-point solvent to clean the element. A fire or explosion could result.

Air Vent Filter Cleaning

- Remove the following.
  Left Inner Fairing
  Air Vent Filter



A. Air Vent Filter B. Compressed Air

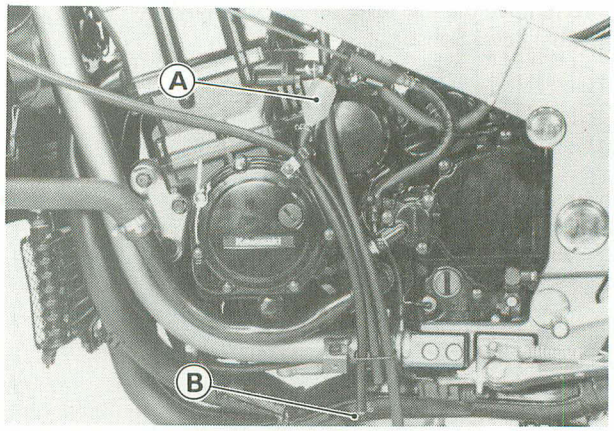
- Clean the filter by directing a stream of compressed air from the clean side to the dirty side.

Oil Draining

- Visually check the reservoir if the water or oil accumulates in the reservoir.

★If any water or oil accumulates in the reservoir, drain it by taking off the drain plug at the lower end of the drain hose.

- Be sure to install the plug firmly, or the air is drawn in through it.



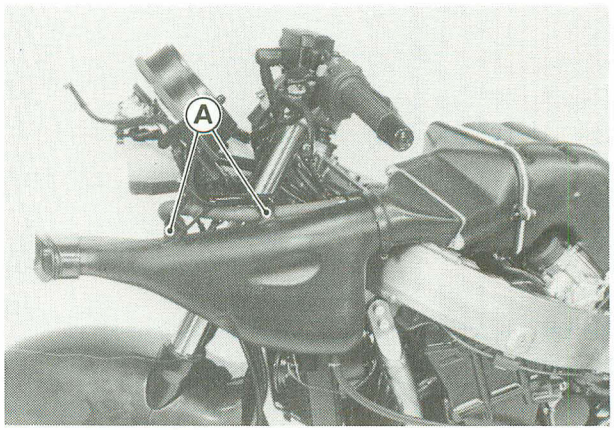
A. Reservoir B. Drain Plug

⚠WARNING

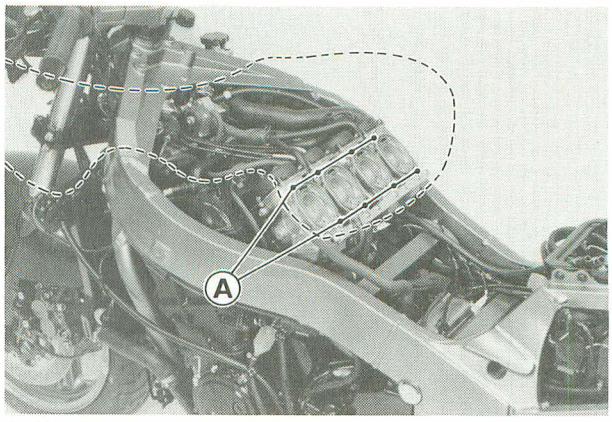
Be sure to install the plug in the drain hose after draining. Oil on tires will make them slippery and can cause an accident and injury.

Air Cleaner Housing Removal

- Remove the following to remove the air cleaner housings and air ducts as an assembly.
  Air Duct Mounting Bolts
  Rear Air Cleaner Housing Mounting Bolts



A. Duct Mounting Bolts



A. Housing Mounting Bolts

● Cover the carburetor intakes with a clean, lint-free towel to keep dirt or other foreign material from entering.

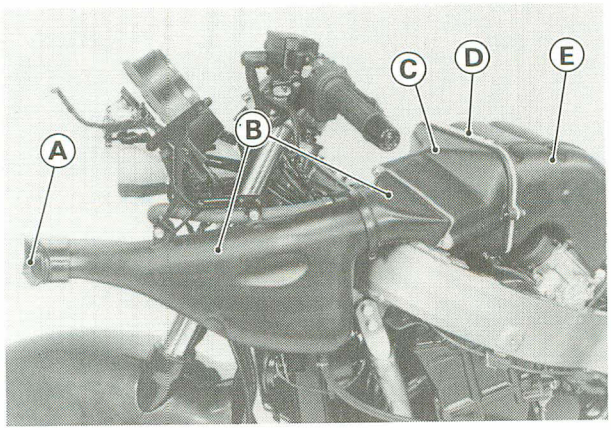
⚠WARNING

If dirt or dust is allowed to pass through into the carburetors, the throttle may become stuck, possibly causing accident.

⚠CAUTION

If dirt gets through into the engine, excessive engine wear and possibly engine damage will occur.

● Disassemble the following.



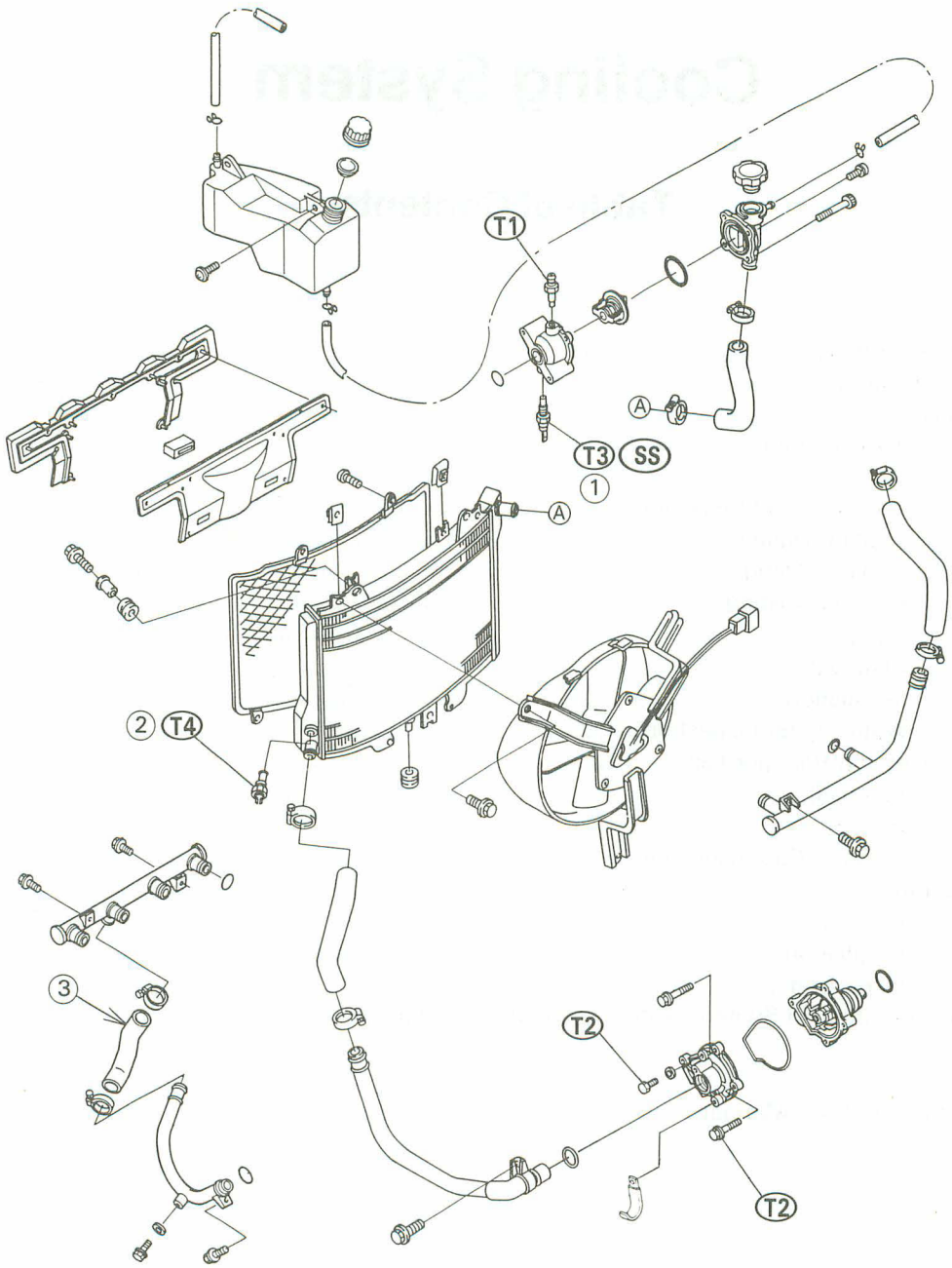
A. Intake
B. Air Duct
C. Front Air Cleaner Housing
D. Element
E. Rear Air Cleaner Housing

Cooling System

Table of Contents

* : Refer to Base Manual

Exploded View



1. Water Temperature Sensor
2. Fan Switch
3. White Paint (front)

SS: Apply silicone sealant.

T1: 7.8 N-m (0.80 kg-m, 69 in-lb)
T2: 9.8 N-m (1.0 kg-m, 87 in-lb)
T3: 15 N-m (1.5 kg-m, 11.0 ft-lb)
T4: 18 N-m (1.8 kg-m,13.0 ft-lb)

Specifications

Item	Standard
Coolant:	
Type	Permanent type of antifreeze (soft water and ethylene glycol plus corrosion and rust inhibitor chemicals for aluminum engines and radiators)
Mixed ratio	Soft water 50%, coolant 50%
Freezing point	−35°C (−31°F)
Total amount	2.5 L
Radiator:	
Radiator cap relief pressure	93 ~ 123 kPa (0.95 ~ 1.25 kg/cm², 14 ~ 18 psi)
Thermostat:	
Valve opening temperature	80 ~ 84°C (176 ~ 183°F)
Valve full opening lift	More than 8mm @95°C (203°F)

Sealant

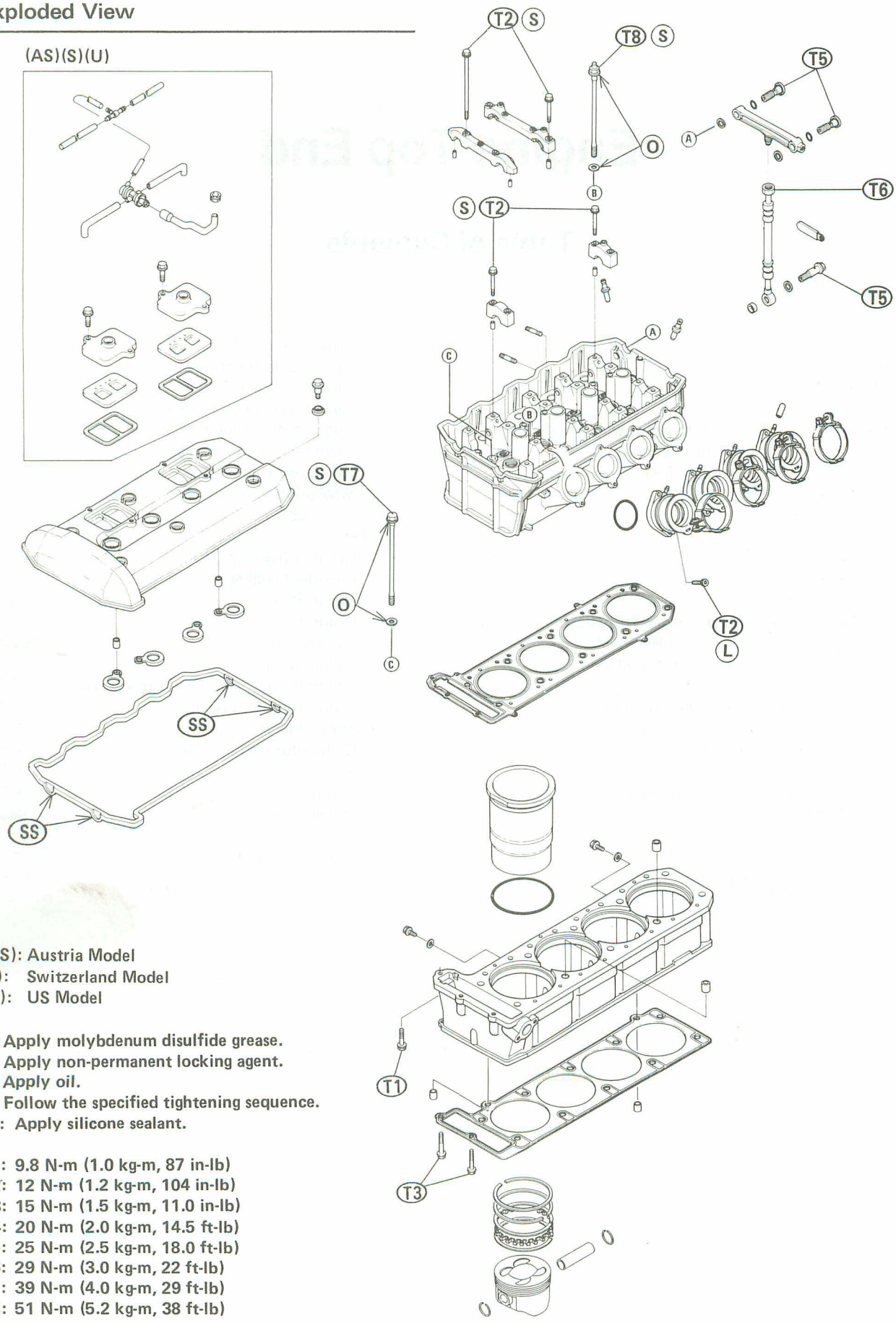
Kawasaki Bond (Silicone Sealant): 56019-120

Engine Top End

Table of Contents

* : Refer to Base Manual

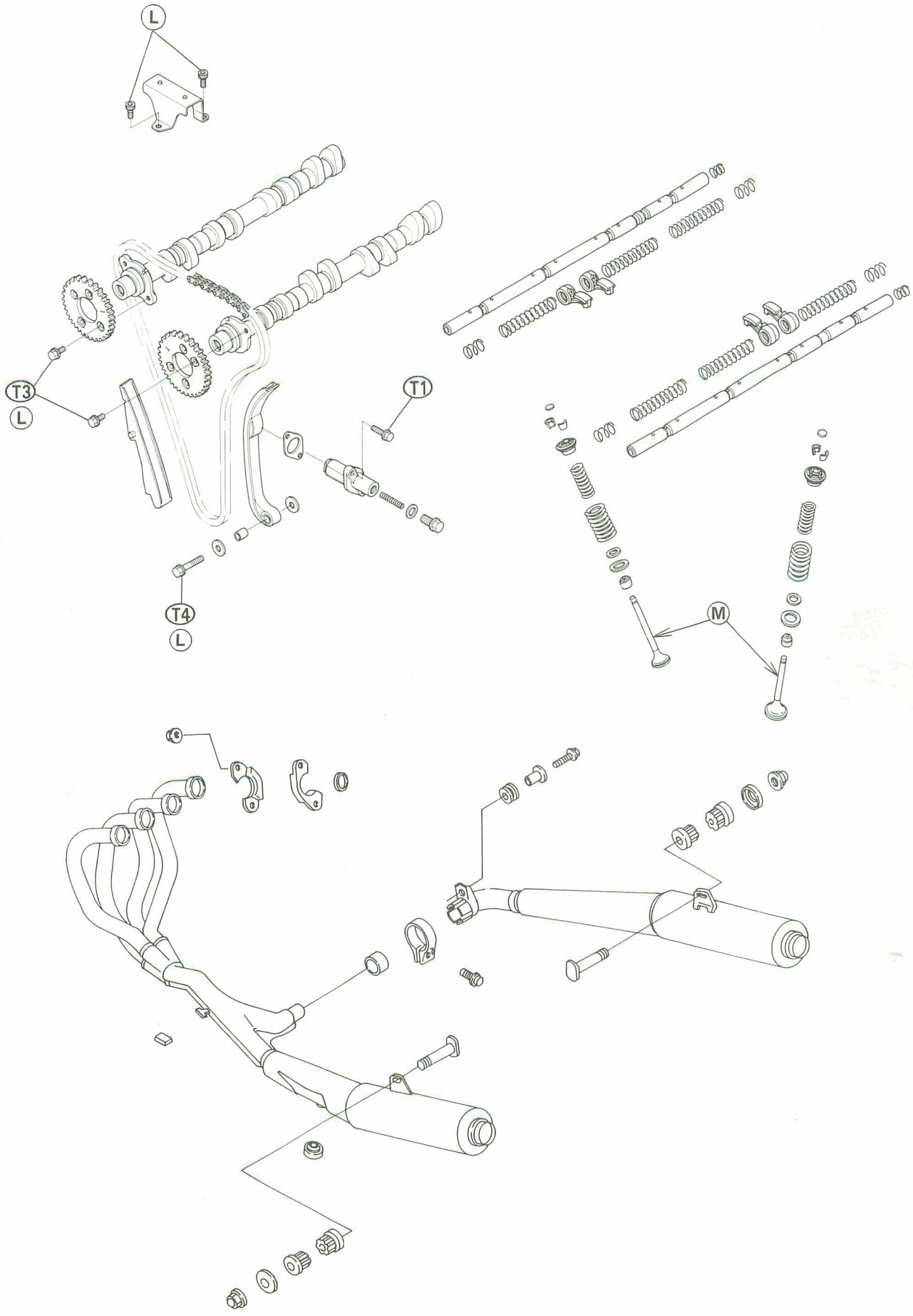
Exploded View



(AS): Austria Model
(S): Switzerland Model
(U): US Model

M: Apply molybdenum disulfide grease.
L: Apply non-permanent locking agent.
O: Apply oil.
S: Follow the specified tightening sequence.
SS: Apply silicone sealant.

T1: 9.8 N-m (1.0 kg-m, 87 in-lb)
T2: 12 N-m (1.2 kg-m, 104 in-lb)
T3: 15 N-m (1.5 kg-m, 11.0 in-lb)
T4: 20 N-m (2.0 kg-m, 14.5 ft-lb)
T5: 25 N-m (2.5 kg-m, 18.0 ft-lb)
T6: 29 N-m (3.0 kg-m, 22 ft-lb)
T7: 39 N-m (4.0 kg-m, 29 ft-lb)
T8: 51 N-m (5.2 kg-m, 38 ft-lb)


L
T3
L
T1
T4
L
M

Specifications

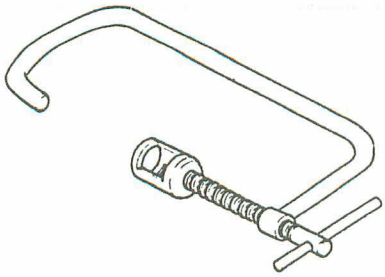
Item		Standard	Service Limit
Clean Air System:			
Vacuum switch valve closing pressure:			
	Open → Close	54 ~ 68 kPa (410 ~ 510 mmHg)	– – –
Camshafts, Camshaft Chain, Rocker Shafts:			
Cam height:	Inlet	36.872 ~ 36.972 mm	36.77 mm
	Exhaust	36.687 ~ 36.787 mm	36.59 mm
Camshaft bearing oil clearance		0.078 ~ 0.121 mm	0.21 mm
Camshaft journal diameter		24.900 ~ 24.922 mm	24.87 mm
Camshaft bearing inside diameter		25.000 ~ 25.021 mm	25.08 mm
Camshaft runout		– – –	0.1 mm TIR
Camshaft chain 20-link length		158.8 ~ 159.2 mm	161.2 mm
Rocker arm inside diameter		12.000 ~ 12.018 mm	12.05 mm
Rocker shaft diameter		11.966 ~ 11.984 mm	11.94 mm
Cylinder Head:			
Cylinder compression		(usable range) 885 ~ 1 350 kPa (9.0 ~ 13.8 kg/cm², 128 ~ 196 psi) @320 r/min (rpm)	– – –
Cylinder head warp		– – –	0.05 mm
Valves:			
Valve clearance:	Inlet	0.13 ~ 0.19 mm	– – –
	Exhaust	0.18 ~ 0.24 mm	– – –
Valve head thickness:	Inlet	0.5 mm	0.25 mm
	Exhaust	0.8 mm	0.5 mm
Valve stem bend		– – –	0.05 mm TIR
Valve stem diameter:	Inlet	4.975 ~ 4.990 mm	4.96 mm
	Exhaust	4.955 ~ 4.970 mm	4.94 mm
Valve guide inside diameter		5.000 ~ 5.012 mm	5.08 mm
Valve/valve guide clearance (wobble method):	Inlet	0.02 ~ 0.07 mm	0.18 mm
	Exhaust	0.06 ~ 0.11 mm	0.21 mm
Valve seating surface:			
Outside diameter:	Inlet	30.8 ~ 31.0 mm	– – –
	Exhaust	26.3 ~ 26.5 mm	– – –
Width		0.5 ~ 1.0 mm	– – –
Valve spring free length:	Inner	35.5 mm	33.6 mm
	Outer	40.5 mm	38.6 mm
Valve seat cutting angle		32°, 45°, 60°	– – –

Item		Standard	Service Limit
Cylinders, Pistons:			
Cylinder inside diameter		75.994 ~ 76.006 mm	76.10 mm
Piston diameter		75.918 ~ 75.938 mm	75.77 mm
Piston/cylinder clearance		0.056 ~ 0.088 mm	- - -
Piston ring/groove clearance:	Top	0.03 ~ 0.07 mm	0.17 mm
	Second	0.02 ~ 0.06 mm	0.16 mm
Piston ring groove width:	Top	0.84 ~ 0.86 mm	0.94 mm
	Second	1.02 ~ 1.04 mm	1.12 mm
	Oil	2.51 ~ 2.53 mm	2.61 mm
Piston ring thickness:	Top	0.77 ~ 0.79 mm	0.7 mm
	Second	0.97 ~ 0.99 mm	0.9 mm
Piston ring end gap:	Top	0.20 ~ 0.32 mm	0.7 mm
	Second	0.20 ~ 0.35 mm	0.7 mm

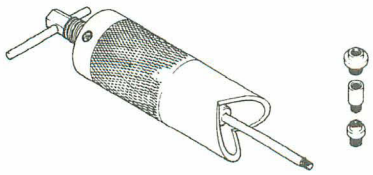
Special Tools

Compression Gauge: 57001-221

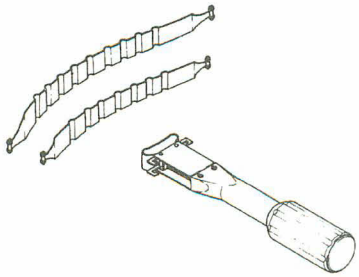
Valve Spring Compressor Assembly: 57001-241



Piston Pin Puller Assembly: 57001-910



Piston Ring Compressor Assembly: 57001-1094



Valve Seat Cutter, 45° – Φ27.5: 57001-1114

Valve Seat Cutter, 45° – Φ32: 57001-1115

Valve Seat Cutter, 32° – Φ30: 57001-1120

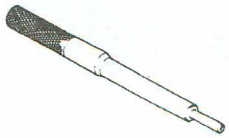
Valve Seat Cutter, 60° – Φ30: 57001-1123

Valve Seat Cutter Holder Bar: 57001-1128

Valve Seat Cutter, 32° – Φ33: 57001-1199

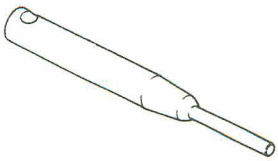
Valve Spring Compressor Adapter, Φ22: 57001-1202

Valve Guide Arbor, Φ5: 57001-1203

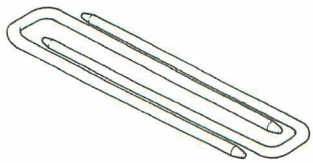


Valve Guide Reamer, Φ5: 57001-1204

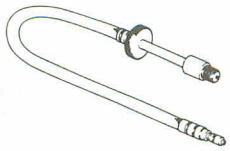
Valve Seat Cutter Holder, Φ5: 57001-1208



Piston Base, Φ6: 57001-1263



Compression Gauge Adapter, M10 X 1.0: 57001-1317



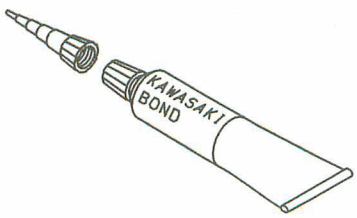
Valve Seat Cutter, 60° – Φ33: 57001-1334

NOTE

○*Four piston ring compressor assemblies (P/N 57001-1094) are required for servicing.*

Sealant

Kawasaki Bond (Silicone Sealant): 56019-120



Valves

Valve Seat Repair (Valve Lapping)

Refer to the Base Manual, noting the following.

Valve Seat Cutters

Inlet Valves:	45° - Φ32	57001-1115
	32° - Φ33	57001-1199
	60° - Φ33	57001-1334
Exhaust Valves:	45° - Φ27.5	57001-1114
	32° - Φ30	57001-1120
	60° - Φ30	57001-1123

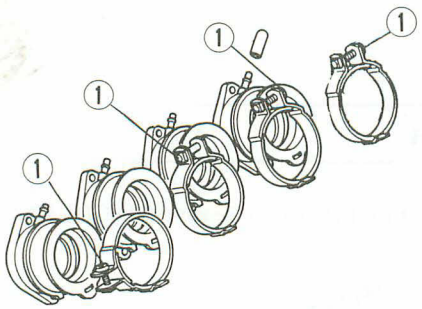
Carburetor Holders

Carburetor Holder Installation

● Install the carburetor holders so that their pipes are upward. Be careful of the clamp screw position.

⚠WARNING

Operation with an improperly installed carburetor holder clamps could result in an unsafe riding condition.

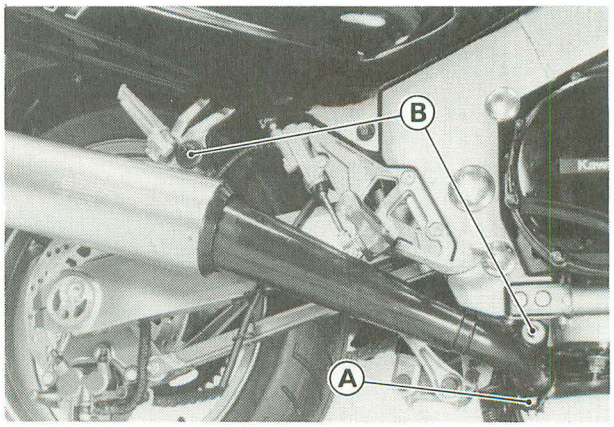


1. Screw Head

Mufflers

Removal

● Remove the following to remove the right muffler.
Muffler Clamp (loosen)
Right Muffler Mounting Bolts



A. Clamp B. Mounting Bolts

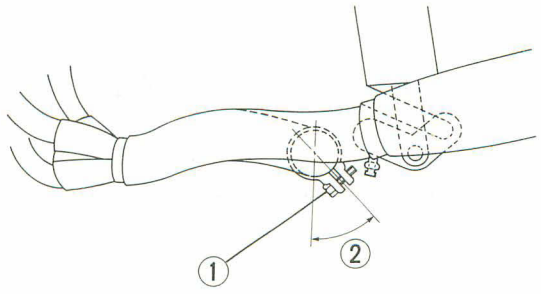
● Remove the following.
Coolant (drain)
Radiator
Horns (both left and right)
Exhaust Pipe Holders
Left Muffler Mounting Bolt

Installation

● Be careful of the muffler clamp position.

⚠CAUTION

If the muffler clamp position is incorrect, the clamp may contact to the grease nipple on the uni-trak rocker arm.



1. Clamp Bolt 2. 45°

Clutch

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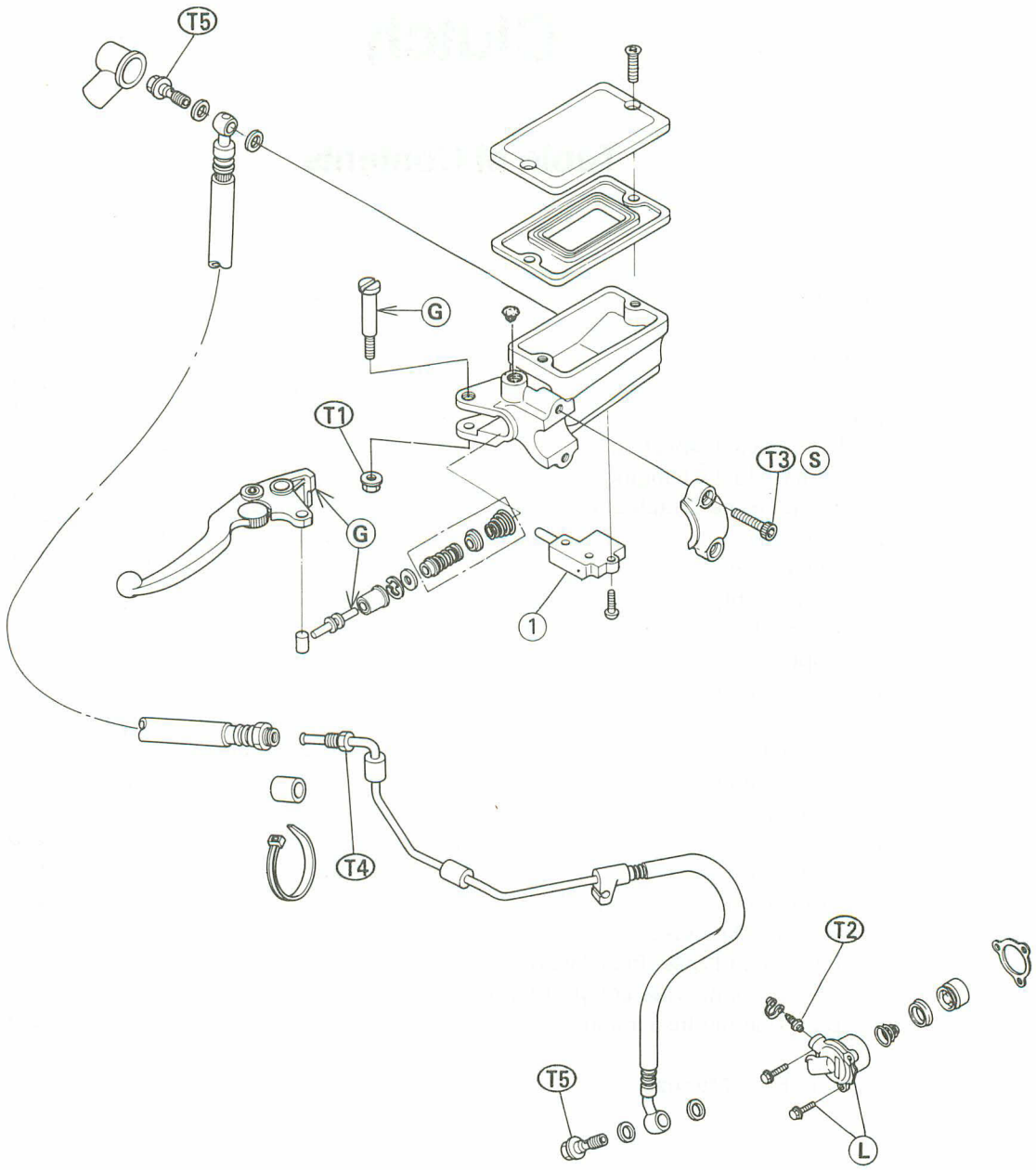
* : Refer to Base Manual

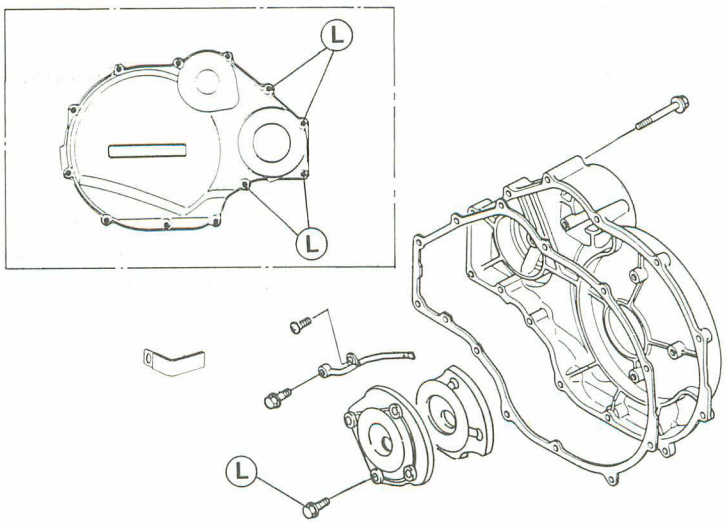
Exploded View

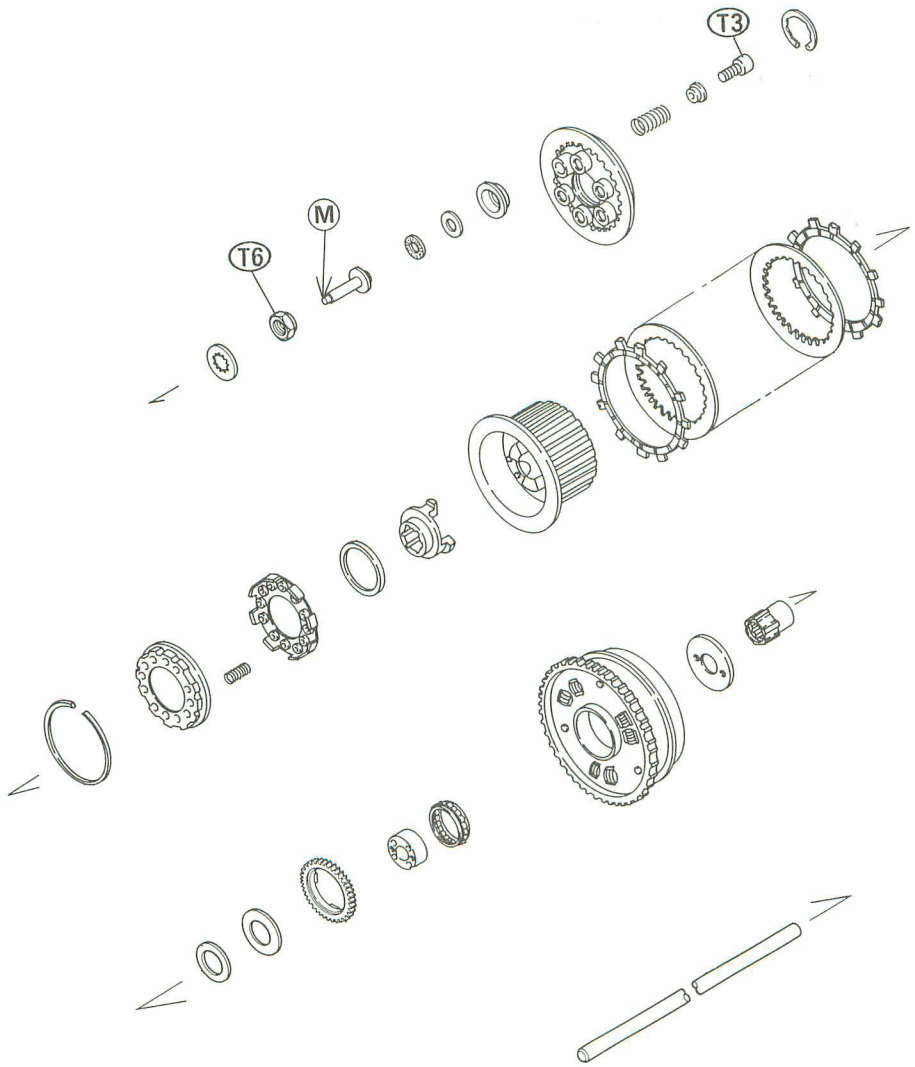


1. Starter Lockout Switch

G: Apply grease.
L: Apply non-permanent locking agent.
M: Apply molybdenum disulfide grease.
S: Follow the specified tightening sequence.

T1: 5.9 N-m (0.60 kg-m, 52 in-lb)
T2: 7.8 N-m (0.80 kg-m, 69 in-lb)
T3: 11 N-m (1.1 kg-m, 95 in-lb)
T4: 18 N-m (1.8 kg-m, 13.0 ft-lb)
T5: 25 N-m (2.5 kg-m, 18.0 ft-lb)
T6: 130 N-m (13.5 kg-m, 98 ft-lb)


L
L
L


T3
M
T6

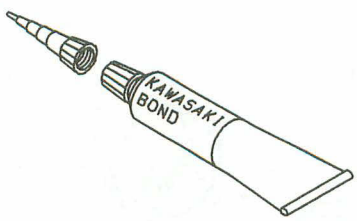
5-4 CLUTCH

Specifications

Item	Standard	Service Limit
Clutch Fluid:		
Grade	D.O.T.4	- - -
Brand (recommended)	Castrol Girling-Universal	- - -
	Castrol GT (LMA)	- - -
	Castrol Disc Brake Fluid	- - -
	Check Shock Premium	
	Heavy Duty	- - -
Clutch:		
Clutch spring free length	46.3 mm	42.7 mm
Friction plate thickness	2.7 ~ 3.0 mm	2.5 mm
Friction and steel plate warp	- - -	0.3 mm

Sealant

Kawasaki Bond (Silicone Sealant): 56019-120



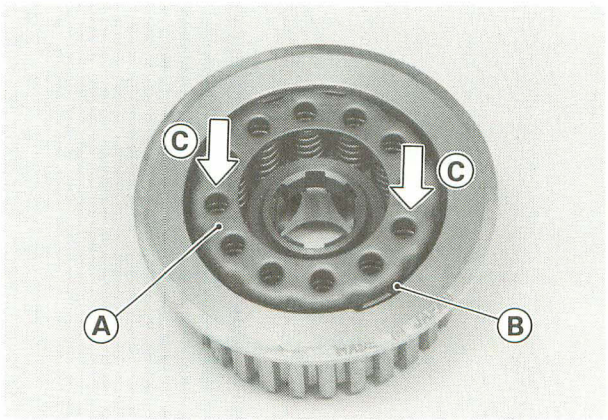
Clutch

Removal

Refer to the Base Manual, noting the following.

● To disassemble the clutch hub, remove the following.
Circlip

○ Press in the damper spring plate, and remove the circlip.



A. Damper Spring Plate
B. Circlip
C. Press in.

Installation

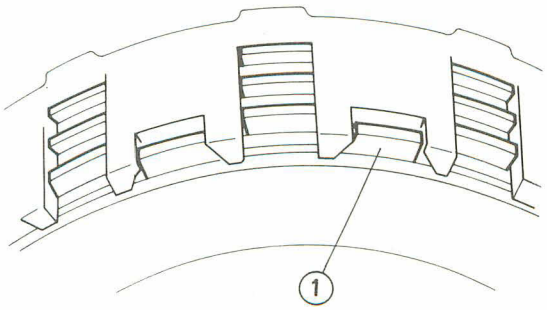
● Installation is the reverse of removal. Note the following.

● Discard the used clutch hub nut, and install a new nut.

⚠CAUTION

If new dry friction plates and steel plates are installed, apply engine oil to the surfaces of each plate to avoid clutch plate seizure.

● Install the last friction plate fitting the tangs in the groove on the housing as shown.



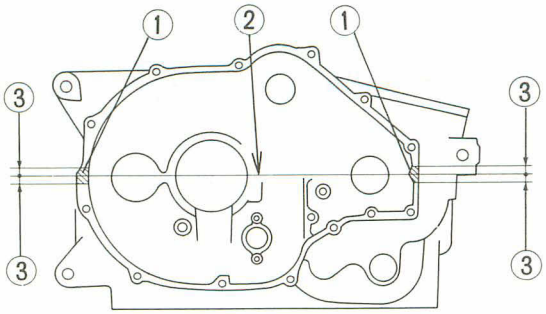
1. Last Friction Plate

● Apply a molybdenum disulfide grease to the following.
Spring Pusher End

● Torque the following (see Exploded View).
Clutch Hub Nut
Clutch Spring Bolts

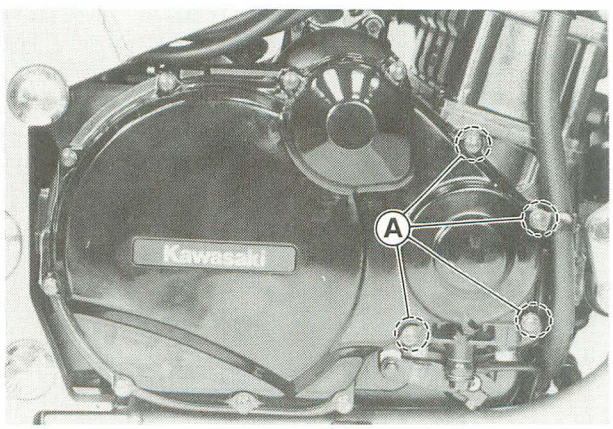
● Before installing the clutch spring plate, squeeze the clutch lever slowly and hold it with a band while pushing the spring plate pusher into the clutch hub.

● Apply a silicone sealant to the following.



1. Silicone Sealant Applied Area
2. Crankcase Mating Surface
3. 5 mm

● Apply a non-permanent locking agent to the following.
Clutch Cover Bolts (4)

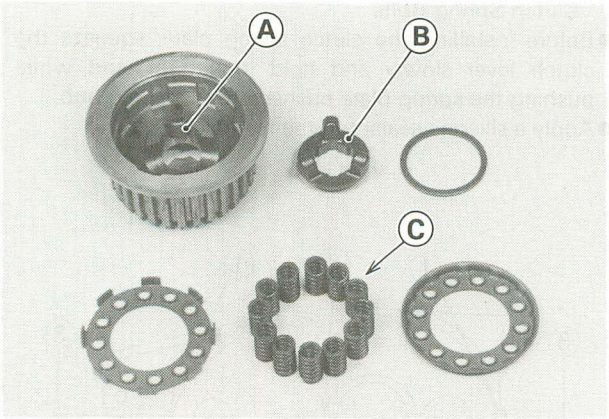


A. Bolts required non-permanent locking agent.

Cam Damper Inspection

● Visually inspect the damper cam, damper springs, and cam follower.

★ Replace any part that appears damaged.



A. Damper Cam
B. Cam Follower
C. Damper Springs

Engine Lubrication System

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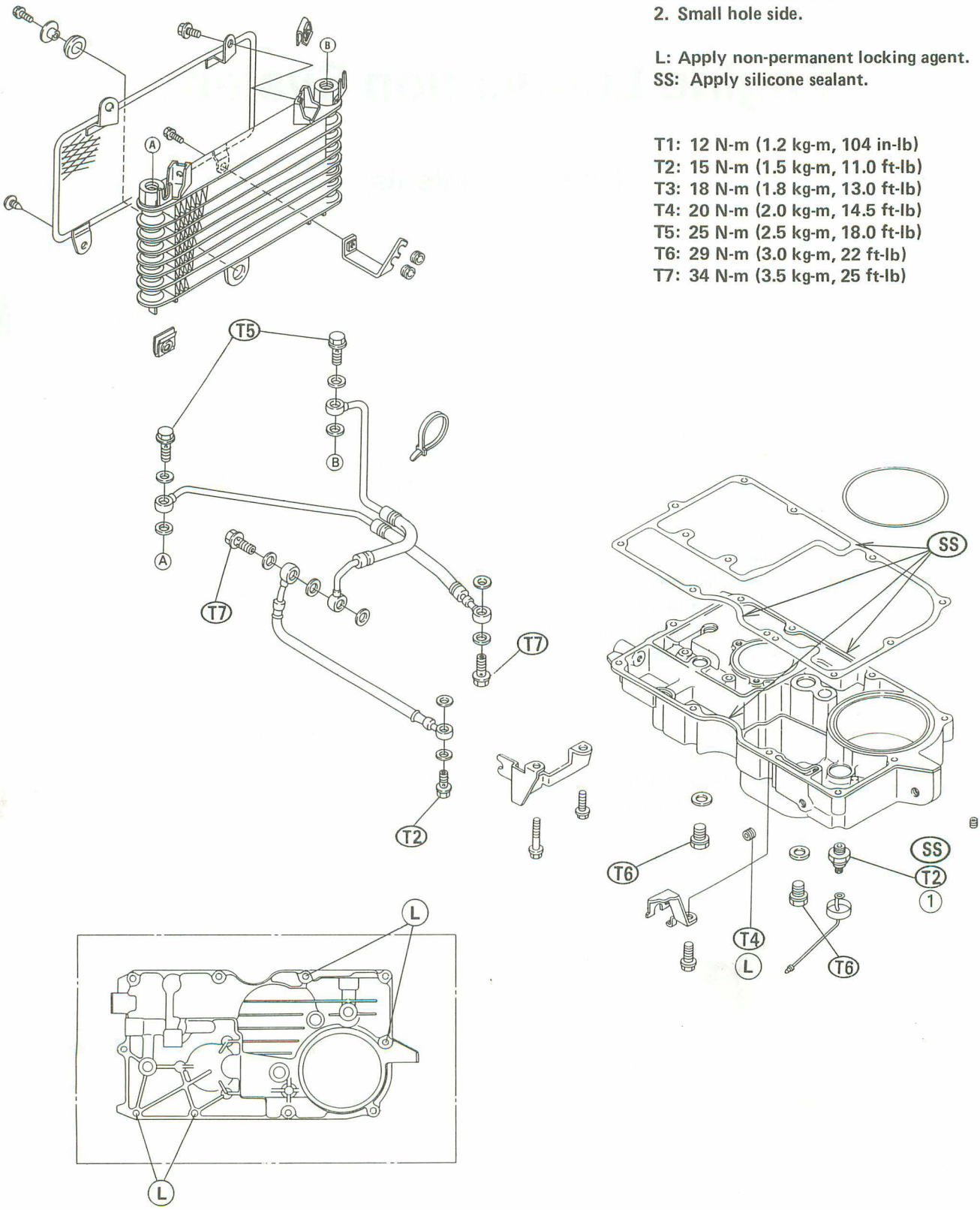
* : Refer to Base Manual

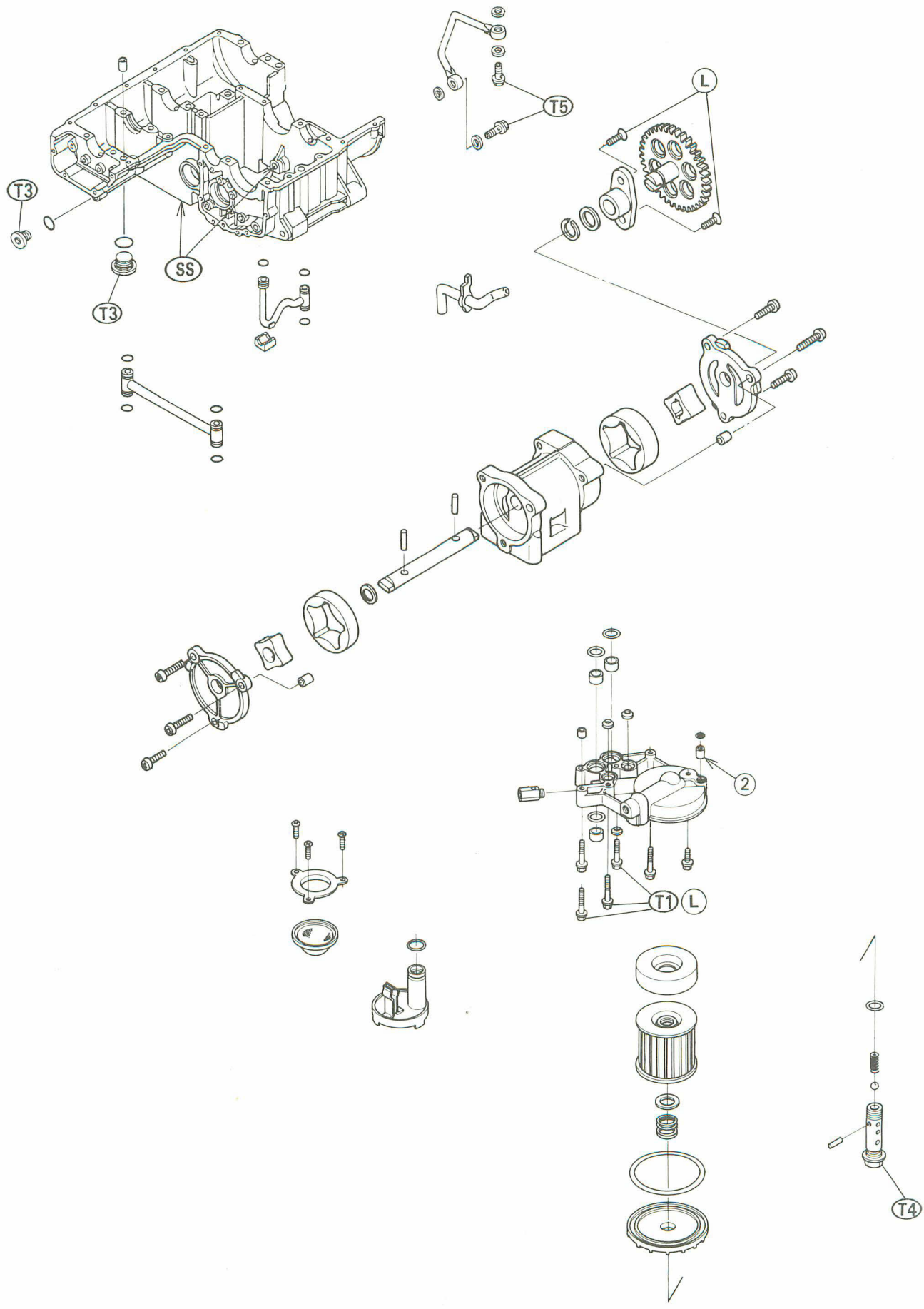
Exploded View



1. Oil Pressure Switch
2. Small hole side.

L: Apply non-permanent locking agent.
SS: Apply silicone sealant.

T1: 12 N-m (1.2 kg-m, 104 in-lb)
T2: 15 N-m (1.5 kg-m, 11.0 ft-lb)
T3: 18 N-m (1.8 kg-m, 13.0 ft-lb)
T4: 20 N-m (2.0 kg-m, 14.5 ft-lb)
T5: 25 N-m (2.5 kg-m, 18.0 ft-lb)
T6: 29 N-m (3.0 kg-m, 22 ft-lb)
T7: 34 N-m (3.5 kg-m, 25 ft-lb)


T3
SS
T3
T5
L
2
T1
L
T4

Specifications

Item	Standard
Engine Oil:	
Grade	SE or SF class
Viscosity	SAE 10W-40, 10W-50, 20W-40, or 20W-50
Capacity	3.2 L (when filter is not removed) 3.5 L (when filter is removed)
Oil Pressure Measurement:	
Relief valve opening pressure	430 ~ 590 kPa (4.4 ~ 6.0 kg/cm², 63 ~ 85 psi)
Oil pressure @4,000 r/min (rpm), oil temp. 90°C (194°F)	196 ~ 294 kPa (2.0 ~ 3.0 kg/cm², 28 ~ 43 psi)

Sealant

Kawasaki Bond (Silicone Sealant): 56019-120

Engine Oil and Oil Filter

Oil Level Inspection

Refer to the Base Manual, noting the following.

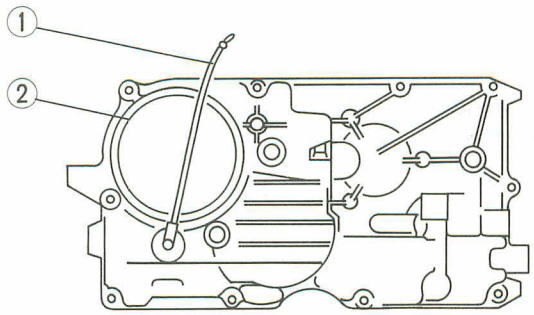
NOTE

○ *Whenever inspecting the engine oil level, wait until the engine cools down.*

Oil Filter Change

Refer to the Base Manual, noting the following.

- Before removing the oil filter, disconnect the oil pressure switch lead.
- Be careful not to pinch the oil pressure switch lead between the oil filter cover and the oil pan.
- The oil pressure switch lead must be installed to the correct position to keep away from the mufflers.



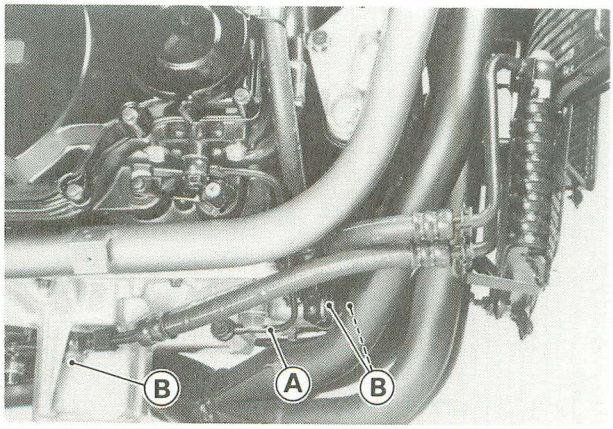
1. Oil Pressure Switch Lead
2. Oil Filter Cover

Oil Pan

Removal

- Remove the following.

Fairings
Engine Oil (drain)
Coolant (drain)
Radiator
Oil Cooler
Mufflers
Oil Filter
Oil Pipe
Oil Hose Banjo Bolts



A. Oil Pipe B. Oil Hose Banjo Bolts

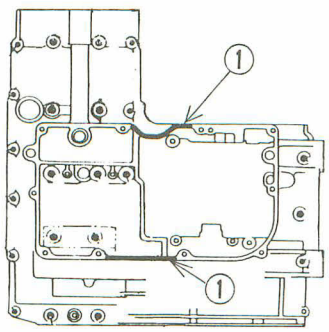
Oil Pan Bolts
Oil Pan

Installation

Refer to the Base Manual, noting the following.

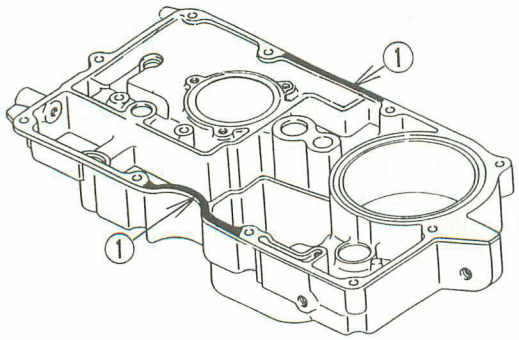
- Apply a silicone sealant to the following.

Crankcase



1. Silicone Sealant Applied Area

Oil Pan

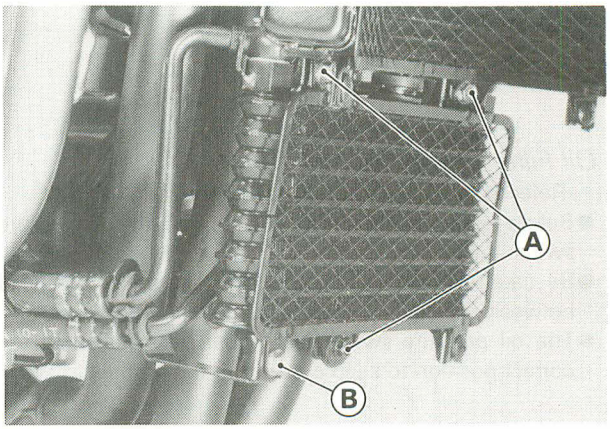


1. Silicone Sealant Applied Area

Oil Cooler

Removal

- Remove the following.
  - Fairings
  - Engine Oil (drain)
  - Oil Hose Banjo Bolts (cooler side)
  - Oil Cooler Mounting Bolts
  - Oil Screen Mounting Bolt

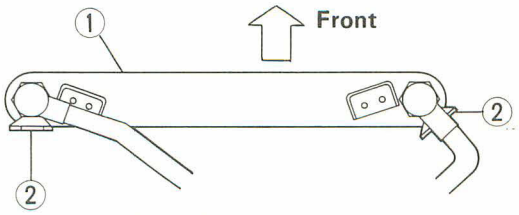


A. Oil Cooler Mounting Bolts
B. Screen Mounting Bolt

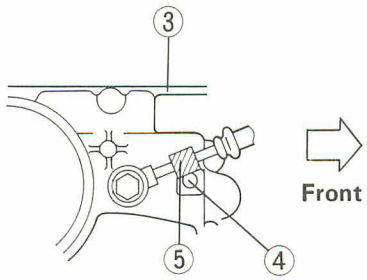
- To remove the oil cooler hoses, remove the following.
  - Mufflers

Installation

- Installation is the reverse of removal. Note the following.
- Replace the washer on each side of the oil hose fitting with a new one.
- Install the oil hose fittings in the correct position.



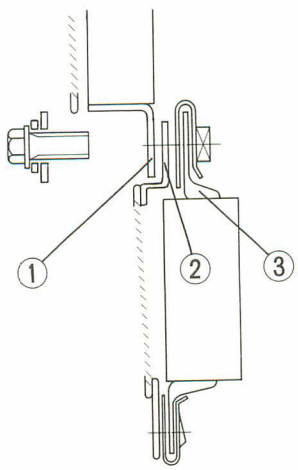
Viewed from Top



Viewed from Bottom

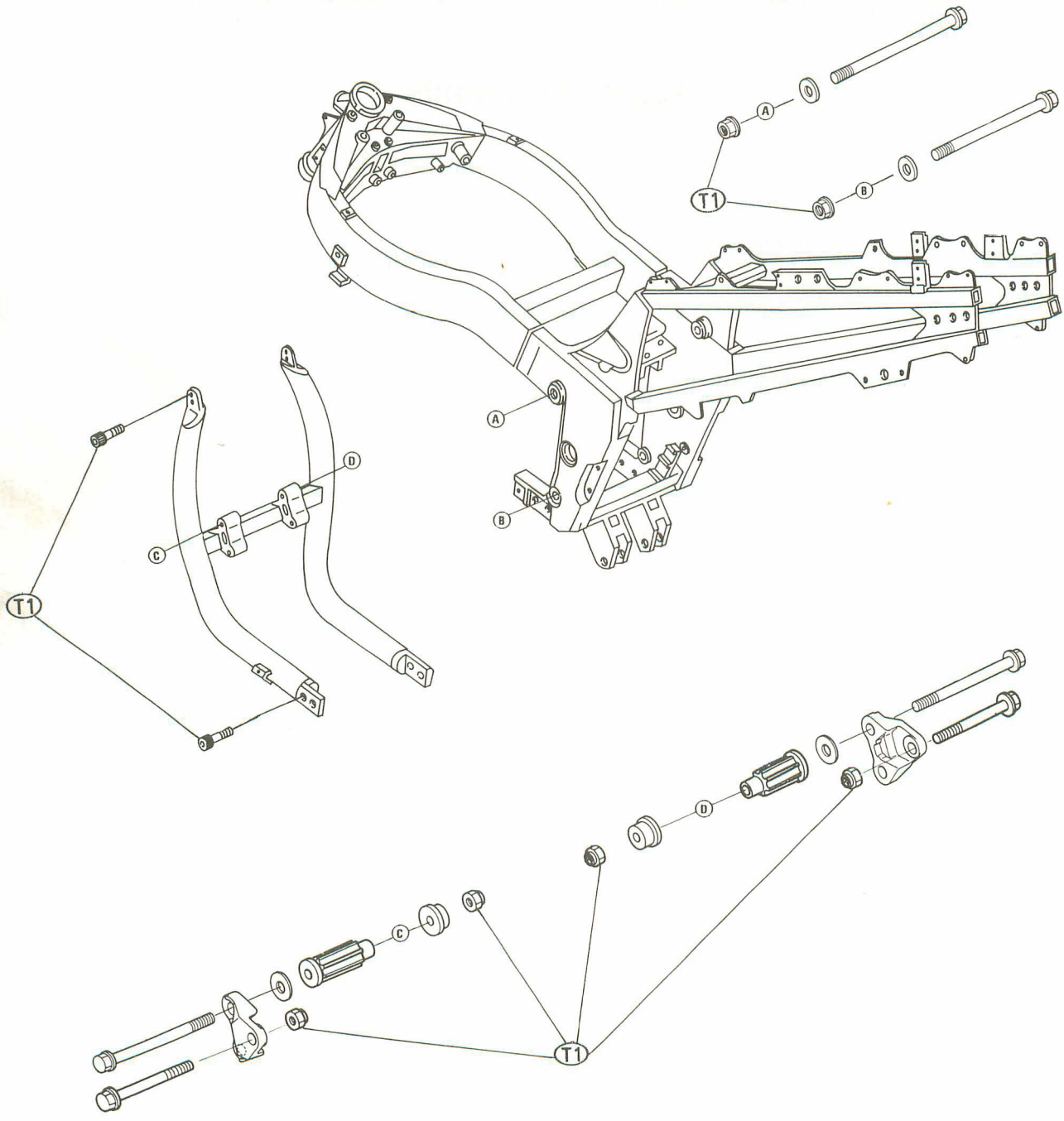
1. Oil Cooler
2. Oil Hose Bracket
3. Oil Pan
4. Projection
5. Damper

- Torque the following (see Exploded View).
  Oil Hose Banjo Bolts
- Install the screen brackets between the oil cooler brackets and the radiator brackets.



1. Radiator Bracket
2. Screen Bracket
3. Oil Cooler Bracket

Exploded View

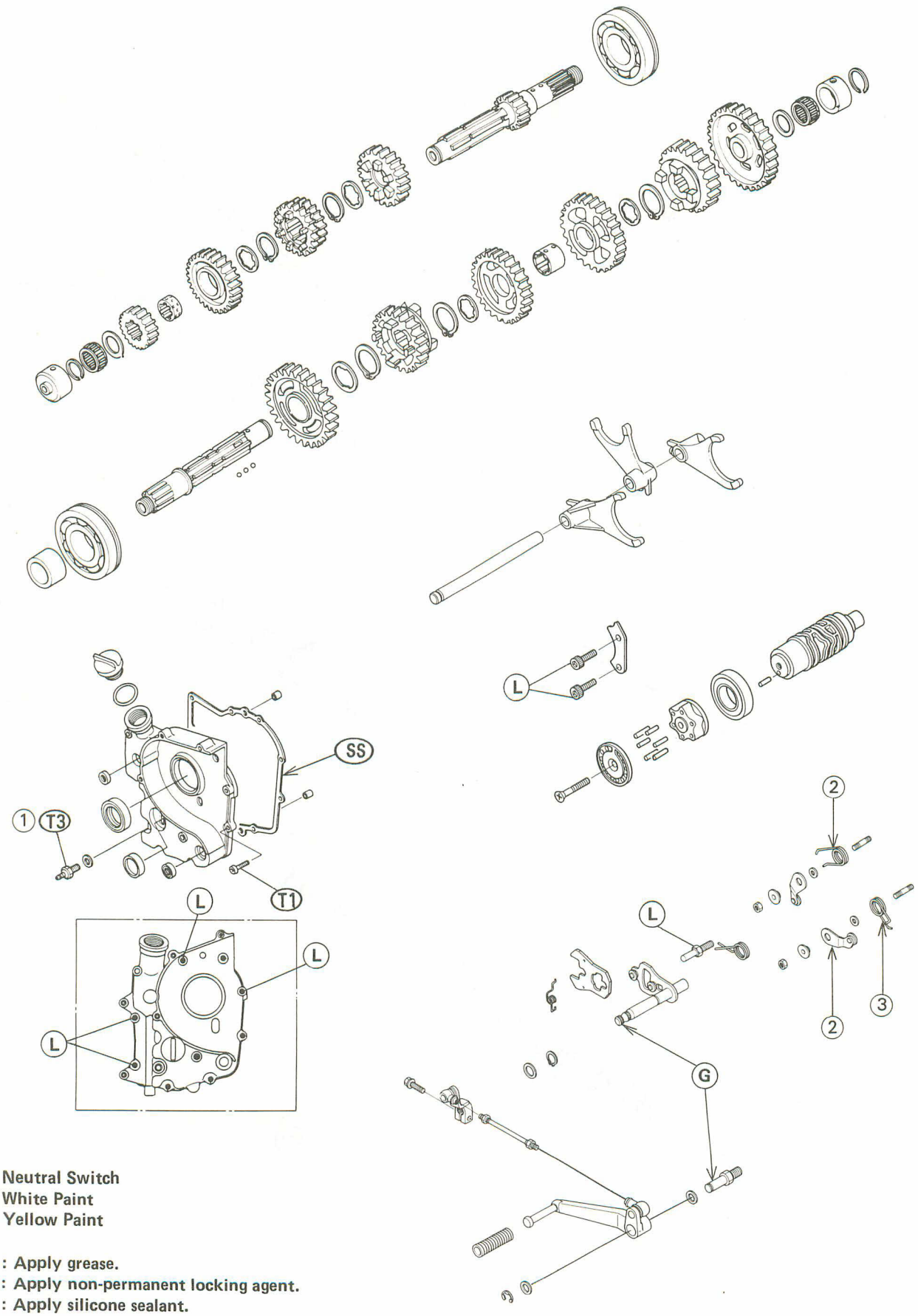


T1: 44 N-m (4.5 kg-m, 33 ft-lb)

Crankshaft / Transmission

Table of Contents

* : Refer to Base Manual



1. Neutral Switch
2. White Paint
3. Yellow Paint

G : Apply grease.
L : Apply non-permanent locking agent.
SS : Apply silicone sealant.

T1 : 9.8 N-m (1.0 kg-m, 87 in-lb)
T3 : 15 N-m (1.5 kg-m, 11.0 ft-lb)

Specifications

Item		Standard	Service Limit
Crankshaft, Connecting Rods:			
Connecting rod bend		– – –	0.2/100 mm
Connecting rod twist		– – –	0.2/100 mm
Connecting rod big end side clearance		0.13 ~ 0.38 mm	0.60 mm
Connecting rod big end bearing insert/crankpin clearance		0.037 ~ 0.065 mm	0.10 mm
Crankpin diameter:		35.984 ~ 36.000 mm	35.97 mm
Marking	None	35.984 ~ 35.992 mm	– – –
	○	35.993 ~ 36.000 mm	– – –
Connecting rod big end bore diameter:		39.000 ~ 39.016 mm	– – –
Marking	None	39.000 ~ 39.008 mm	– – –
	○	39.009 ~ 39.016 mm	– – –
Connecting rod big end bearing insert thickness:	Black	1.475 ~ 1.480 mm	– – –
	Blue	1.480 ~ 1.485 mm	– – –
	White	1.485 ~ 1.490 mm	– – –

Connecting rod big end bearing insert selection:

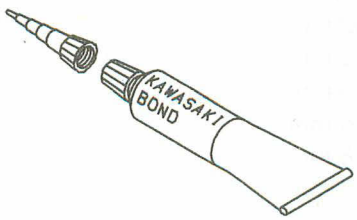
Con-Rod Big End Bore Diameter Marking	Crankpin Diameter Marking	Bearing Insert	
		Size Color	Part Number
○	○	Blue	92028-1592
None	None		
○	None	White	92028-1593
None	○	Black	92028-1591

Crankshaft runout		– – –	0.05 mm TIR
Crankshaft main bearing insert/journal clearance		0.020 ~ 0.044 mm	0.07 mm
Crankshaft main journal diameter:		35.984 ~ 36.000 mm	35.96 mm
Marking	None	35.984 ~ 35.992 mm	– – –
	1	35.993 ~ 36.000 mm	– – –
Crankcase main bearing bore diameter:		39.000 ~ 39.016 mm	– – –
Marking	○	39.000 ~ 39.008 mm	– – –
	None	39.009 ~ 39.016 mm	– – –
Crankshaft main bearing insert thickness:			
	Brown	1.490 ~ 1.494 mm	– – –
	Black	1.494 ~ 1.498 mm	– – –
	Blue	1.498 ~ 1.502 mm	– – –

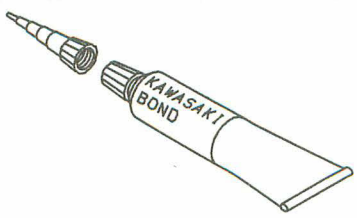
<table>
<tr><th>Item</th><th>Standard</th><th>Service Limit</th></tr>
<tr><td colspan="3">Crankshaft main bearing insert selection:
<table>
<tr><th rowspan="2">Crankcase Main Bearing Bore Diameter Marking</th><th rowspan="2">Crankshaft Main Journal Diameter Mark</th><th colspan="3">Bearing Insert*</th></tr>
<tr><th>Size Color</th><th>Part Number</th><th>Journal Nos.</th></tr>
<tr><td rowspan="2">○</td><td rowspan="2">1</td><td rowspan="2">Brown</td><td>92028-1102</td><td>2, 4</td></tr>
<tr><td>92028-1274</td><td>1, 3, 5</td></tr>
<tr><td rowspan="2">None</td><td rowspan="2">None</td><td rowspan="2">Blue</td><td>92028-1100</td><td>2, 4</td></tr>
<tr><td>92028-1272</td><td>1, 3, 5</td></tr>
<tr><td>○</td><td>None</td><td rowspan="2">Black</td><td>92028-1101</td><td>2, 4</td></tr>
<tr><td>None</td><td>1</td><td>92028-1273</td><td>1, 3, 5</td></tr>
</table>
*The bearing inserts for Nos. 2 and 4 journals have an oil grooves.</td></tr>
<tr><td>Crankshaft side clearance</td><td>0.05 ~ 0.20 mm</td><td>0.40 mm</td></tr>
<tr><td>Alternator Shaft:
Alternator shaft chain 20-link length</td><td>
158.8 ~ 159.2 mm</td><td>
161.2 mm</td></tr>
<tr><td>Transmission:
Gear backlash
Gear shift fork groove width
Shift fork ear thickness
Shift fork guide pin diameter
Shift drum groove width</td><td>
0.06 ~ 0.23 mm
5.05 ~ 5.15 mm
4.9 ~ 5.0 mm
7.9 ~ 8.0 mm
8.05 ~ 8.20 mm</td><td>
0.3 mm
5.3 mm
4.8 mm
7.8 mm
8.3 mm</td></tr>
</table>

Sealant

Kawasaki Bond (Silicone Sealant): 56019-120



Kawasaki Bond (Liquid Gasket – Black): 92104-1003



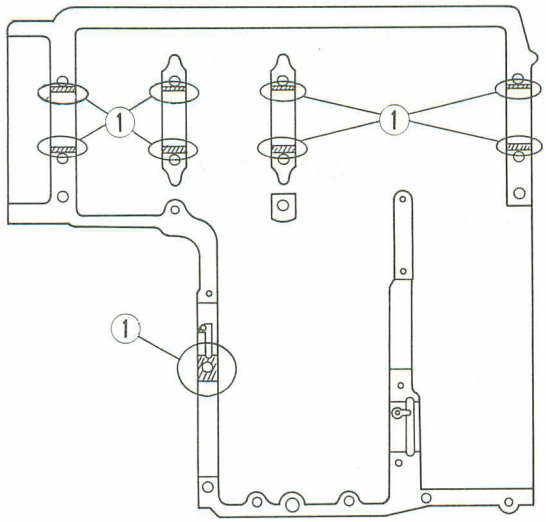
Crankcase Splitting

Crankcase Assembly

Refer to the Base Manual, noting the following.

● Apply a silicone sealant to the following.
Crankcase Mating Surfaces (both upper and lower)

○ Do not apply a silicone sealant to the following.

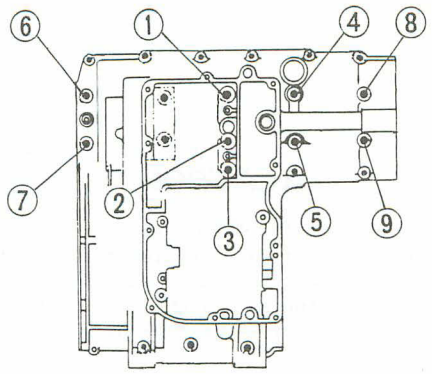


1. Do not apply silicone sealant. (both upper and lower)

● Tighten the lower crankcase half bolts using the following 4 steps.

○ Lightly tighten all lower crankcase half bolts to a snug fit. The three 9 mm bolts (sequence numbered 1 through 3) have a flat washer.

○ Torque the 9 mm bolts. The sequence numbers on the lower crankcase half.



Torque Value for 9 mm Bolts

First: 9.8 N-m (1.0 kg-m, 87 in-lb)
Final: 32 N-m (3.3 kg-m, 24 ft-lb)

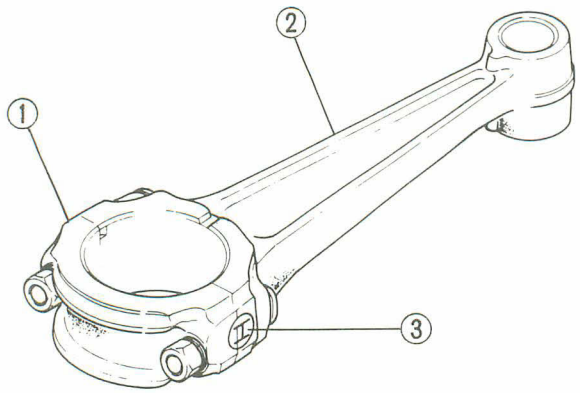
○ Torque the 7 mm bolt (see Exploded View).

○ Torque the 6 mm bolts (see Exploded View).

Crankshaft/Connecting Rods

Connecting Rod Installation

●To minimize vibration, a pair of connecting rod (left two rods or right two) should have the same weight mark. The left two rods are a pair and the right two rods are a pair. The weight mark is indicated by a capital letter, and is stamped on the connecting rod big end.



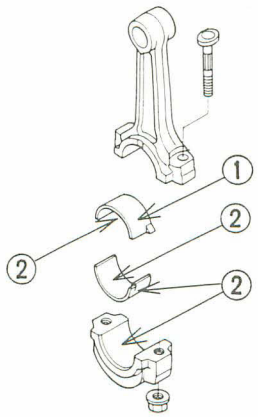
1. Big End Cap
2. Connecting Rod
3. Weight Mark, Alphabet

●If the connecting rods or bearing inserts are replaced with new ones, check clearance with plastigage before assembling engine to be sure the correct bearing inserts are installed.

●Apply molybdenum disulfide grease to the upper inner surface of the connecting rod big end.

⚠CAUTION

Do not apply grease to the inner surface of the upper or lower bearing inserts or to the outer surface of the lower bearing insert.



1. Apply grease.
2. Do not apply grease.

●The connecting rod bolts are designed to stretch when tightened. Never reuse them. Replace the connecting rod big end bolts with new ones.

○The new connecting rod bolt and nut are treated with an anti-rust solution, be sure to clean the bolt and nut thoroughly with high flash-point solvent.

⚠WARNING

Clean the bolts and nuts in a well-ventilated area, and take care that there is no spark or flame anywhere near the working area, this includes any appliance with a pilot light. Because of the danger of highly flammable liquids, do not use gasoline or low flash-point solvents to clean the bolts and nuts.

⚠CAUTION

Immediately dry the bolts and nuts with compressed air after cleaning.
Clean and dry the bolts and nuts completely.

●Apply a small amount of engine oil to the threads and seating surface of the connecting rod nuts.

●Tighten the nuts to the specified torque.

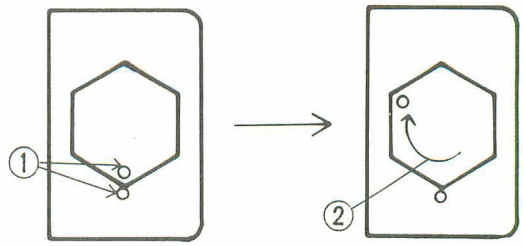
Connecting Rod Big End Cap Nut Torque

15 N-m (1.5 kg-m, 11.0 ft-lb)

●Tighten the nuts **120°** more.

○Mark the connecting rod big end caps and nuts so that nuts can be turned 120° properly.

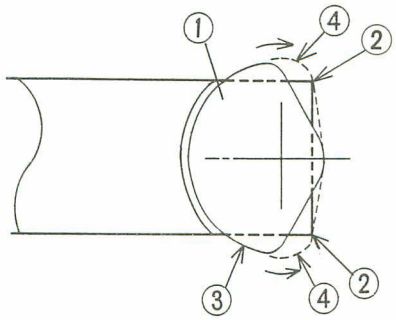
○Tighten the hexagonal nut by 2 corners.



1. Marks
2. 120°

⚠CAUTION

Be careful not to overtighten the nuts.
Be careful not to turn the connecting rod bolts during the nut tightening. The bolts must be positioned correctly to avoid the bolt heads (#1 and #2 cylinder rear side bolts) contact to the crankcase.



1. Bolt Head
2. Connecting Rod Big End Shoulder
3. Bolt Correct Position
4. Do not over turn at this position.

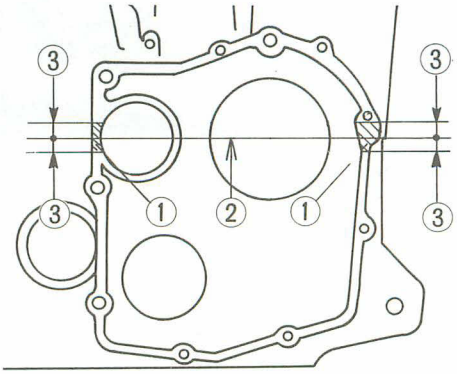
Transmission

External Shift Mechanism Installation

Refer to the Base Manual, noting the following.

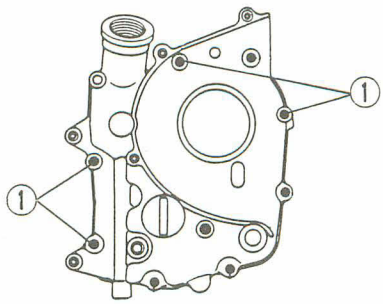
● Apply a silicone sealant to the following.

Crankcase



1. Silicone Sealant Applied Area
2. Crankcase Mating Surface
3. 5 mm

● Apply a non-permanent locking agent to the following.
Cover Bolts (4)



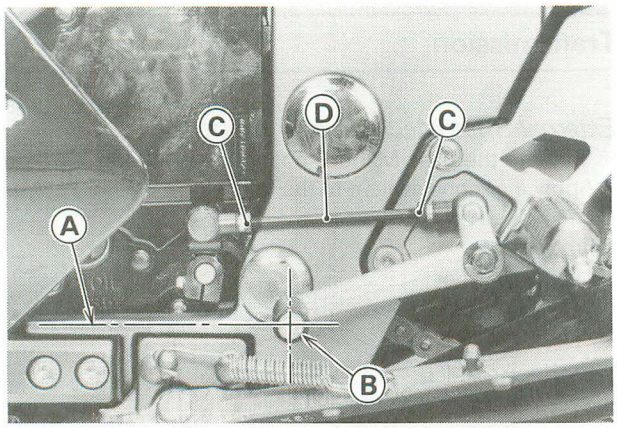
1. Bolts required non-permanent locking agent.

● Torque the following (see Exploded View).
External Shift Mechanism Cover Bolts
Neutral Switch (if removed)

● Adjust the shift pedal position correctly if the shift pedal linkage was disassembled.

○ Loosen the locknuts and turn the rod to adjust the shift pedal position.

○ Tighten the locknuts.



A. Frame Edge
B. Pedal Correct Position
C. Locknut
D. Rod

Wheels / Tires

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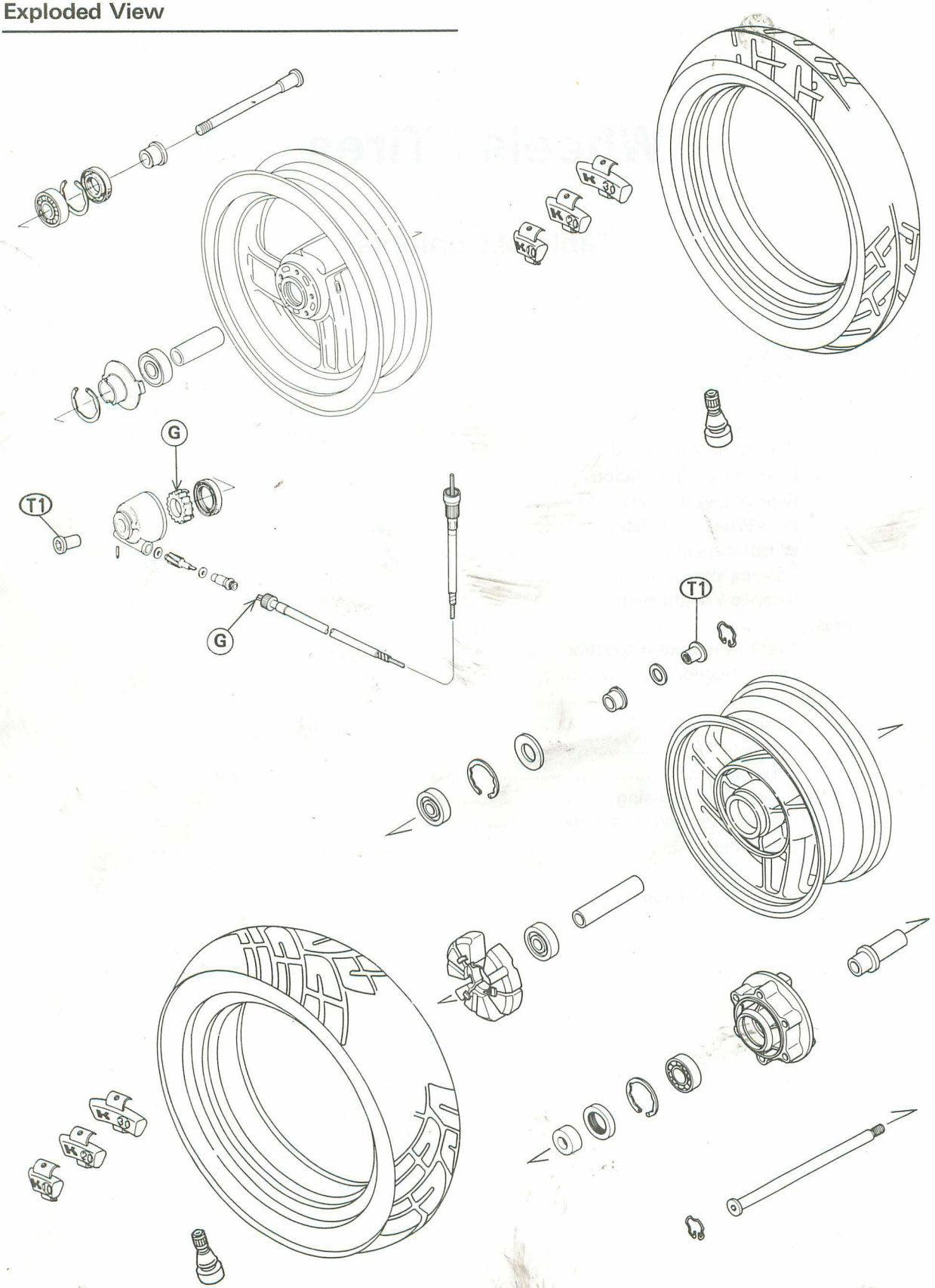
* : Refer to Base Manual

Exploded View



G: Apply grease.

T1: 110 N-m (11.0 kg-m, 72 ft-lb)

Specifications

Item	Standard	Service Limit
Wheels:		
Rim runout: Axial	– – –	0.5 mm
Radial	– – –	0.8 mm
Axle runout/100 mm	– – –	0.2 mm
Tires:		
Tire air pressure:		

Front	Up to 183 kg (404 lb) load	290 kPa (2.9 kg/cm², 41 psi)
Rear	Up to 183 kg (404 lb) load	290 kPa (2.9 kg/cm², 41 psi)

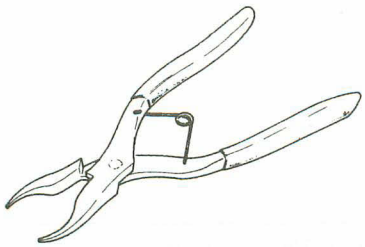
Standard tire:

Front	○ 120/70VR17-V290 DUNLOP SPORT MAX or BRIDGESTONE CYROX-17 ○ 120/70ZR17 PIRELLI MP7 SPORT, METZELER ME33LASER or MICHELINE A59X
Rear	○ 170/60VR17-V290 DUNLOP SPORT MAX or BRIDGESTONE CYROX-18 ○ 170/60ZR17 PIRELLI MP7 SPORT, METZELER ME55 or MICHELINE M59X

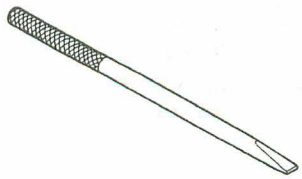
Tire tread depth:	Front	4.4 mm	1 mm
	Rear	6.0 mm	2 mm (Under 130 km/h, Under 80 mph) 3 mm (Over 130 km/h, Over 80 mph)

Special Tools

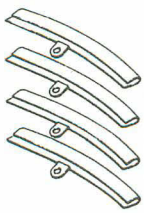
Inside Circlip Pliers: 57001-143



Bearing Remover Shaft: 57001-1265

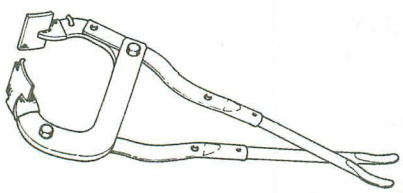


Rim Protector: 57001-1063

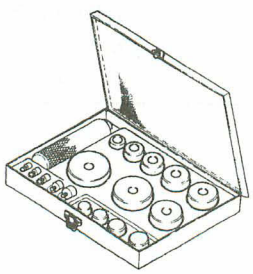


Bearing Remover Head, Φ20 x Φ22: 57001-1293

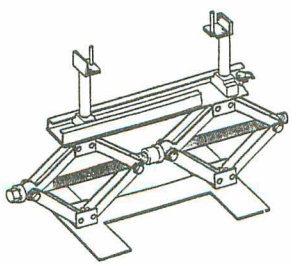
Bead Breaker Assembly: 57001-1072



Bearing Driver Set: 57001-1129



Jack: 57001-1238



Final Drive

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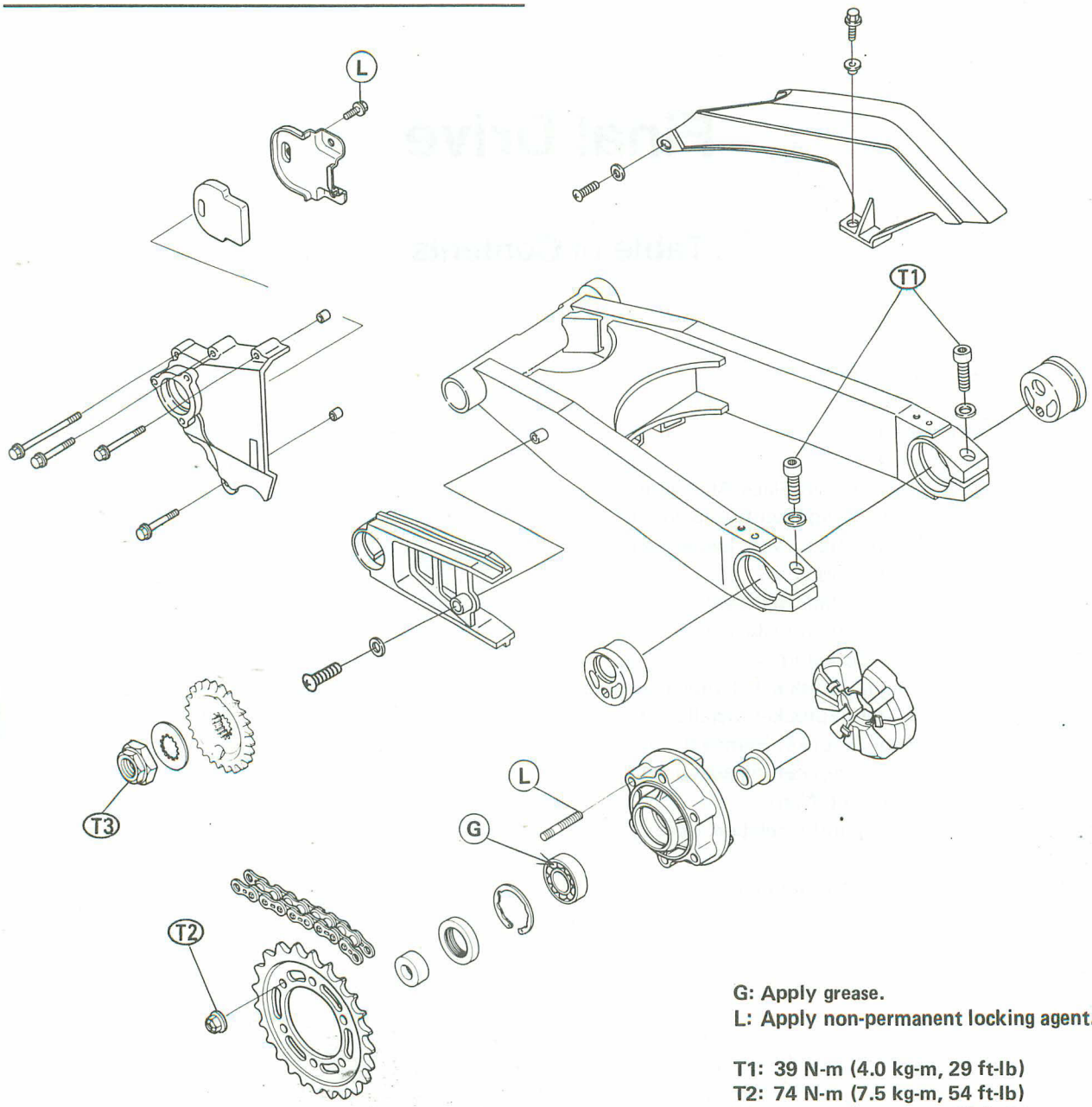
* : Refer to Base Manual

Exploded View



G: Apply grease.
L: Apply non-permanent locking agent.

T1: 39 N-m (4.0 kg-m, 29 ft-lb)
T2: 74 N-m (7.5 kg-m, 54 ft-lb)
T3: 98 N-m (10.0 kg-m 72 ft-lb)

Specifications

Item	Standard	Service Limit
Drive Chain:		
Make, type	Enuma, endless EK50UV-O 110 Link	– – – – – –
Chain slack	35 ~ 40 mm	Less than 35 mm, or more than 45 mm
20-link length	317.5 ~ 318.2 mm	323 mm
Sprockets:		
Rear sprocket warp	– – –	0.5 mm

Brakes

Table of Contents

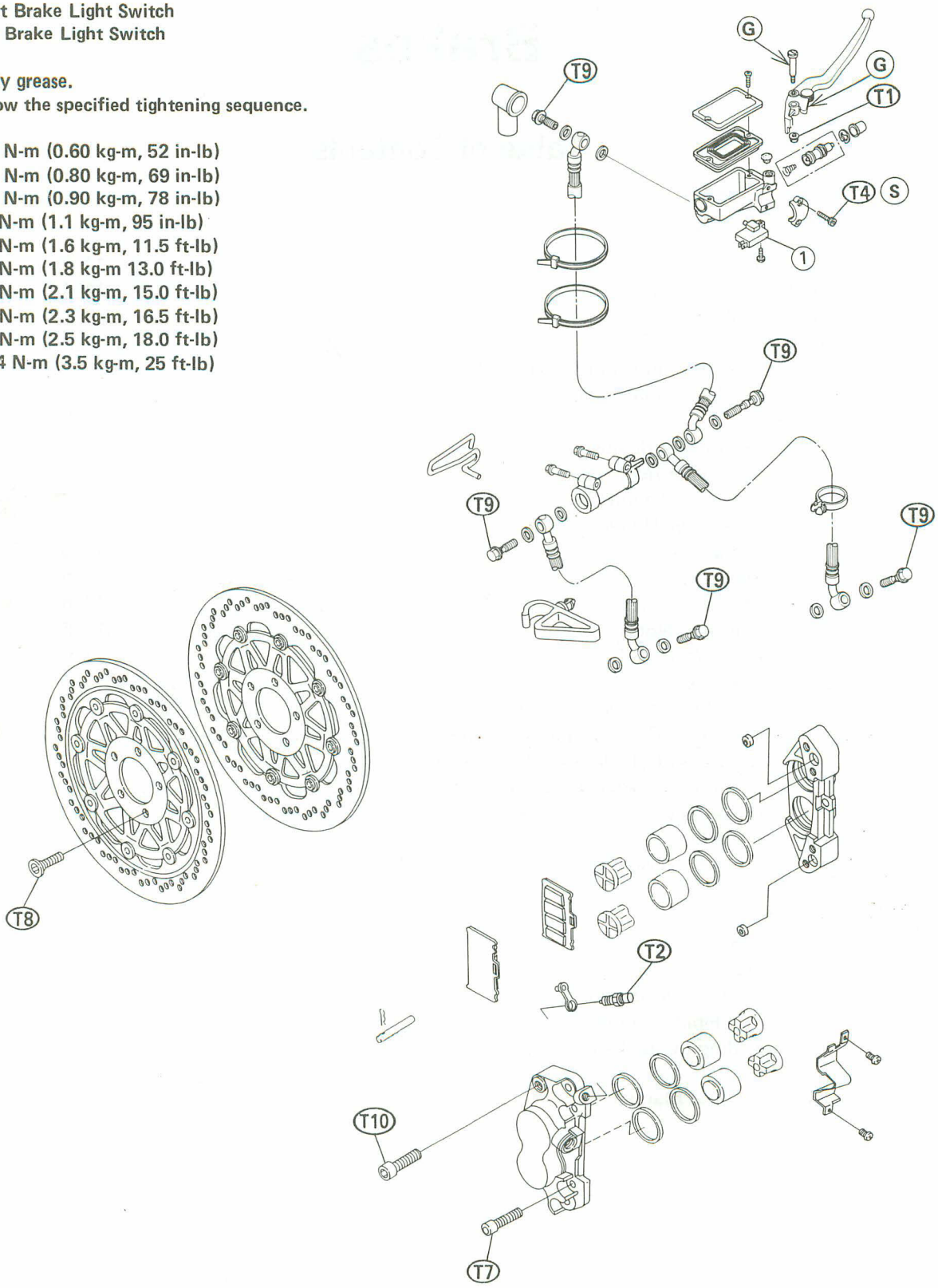
* : Refer to Base Manual

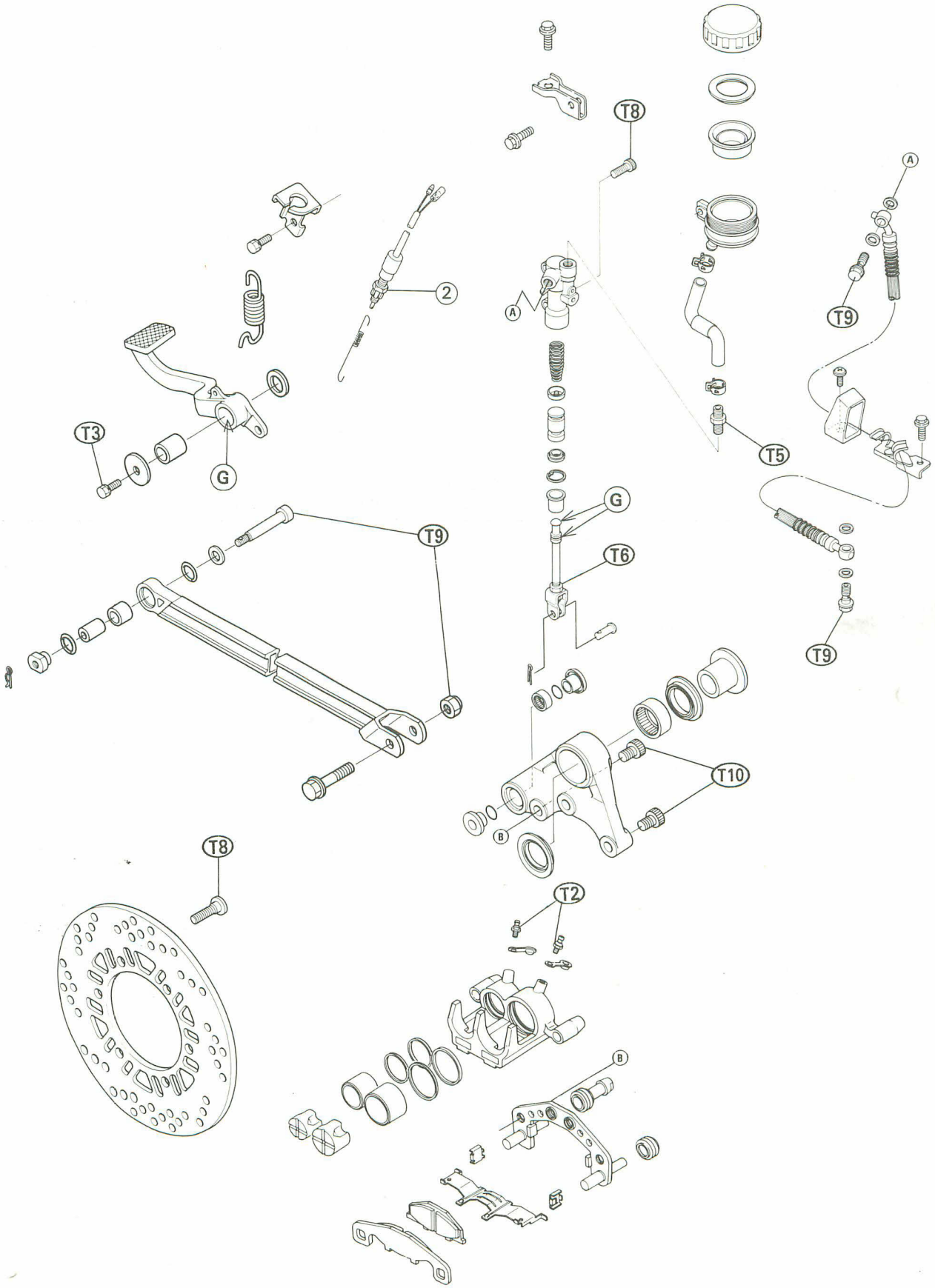
Exploded View

1. Front Brake Light Switch
2. Rear Brake Light Switch

G: Apply grease.
S: Follow the specified tightening sequence.

T1: 5.9 N-m (0.60 kg-m, 52 in-lb)
T2: 7.8 N-m (0.80 kg-m, 69 in-lb)
T3: 8.8 N-m (0.90 kg-m, 78 in-lb)
T4: 11 N-m (1.1 kg-m, 95 in-lb)
T5: 16 N-m (1.6 kg-m, 11.5 ft-lb)
T6: 18 N-m (1.8 kg-m 13.0 ft-lb)
T7: 21 N-m (2.1 kg-m, 15.0 ft-lb)
T8: 23 N-m (2.3 kg-m, 16.5 ft-lb)
T9: 25 N-m (2.5 kg-m, 18.0 ft-lb)
T10: 34 N-m (3.5 kg-m, 25 ft-lb)




T8
A
T9
2
T5
T3
G
G
T6
T9
T9
T10
B
T8
T2
B

Specifications

Item		Standard	Service Limit
Brake Pedal:			
Brake pedal position		45 mm below top of footpeg	– – –
Rear brake light switch		ON after about 10 mm pedal travel	– – –
Brake Pads:			
Pad lining thickness:	Front	4.0 mm	1 mm
	Rear	4.5 mm	1 mm
Brake Discs:			
Disc thickness:	Front	4.8 ~ 5.1 mm	4.5 mm
	Rear	5.8 ~ 6.1 mm	5.0 mm
Disc runout		– – –	0.3 mm
Brake Fluid:			
Grade		D.O.T.4	– – –
Brand (recommended)		Castrol Girling-Universal	– – –
		Castrol GT (LMA)	– – –
		Castrol Disc Brake Fluid	– – –
		Check Shock Premium Heavy Duty	– – –

Calipers

Front Caliper Removal

● Remove the following if the caliper is to be removed from the vehicle completely.
Brake Hose Banjo Bolt (at the caliper)

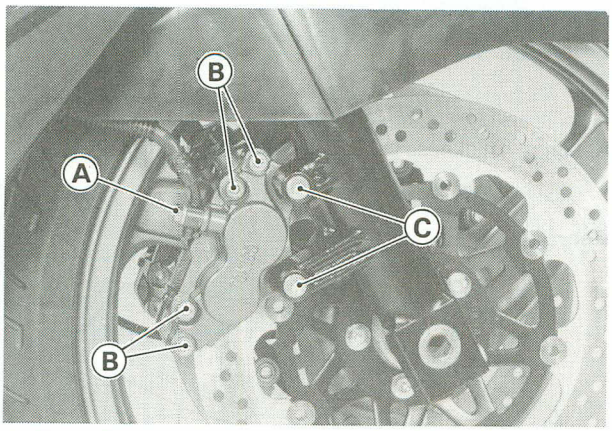
⚠CAUTION

Immediately wipe up any brake fluid that spills.

● Remove the following.
Caliper Mounting Bolts

⚠CAUTION

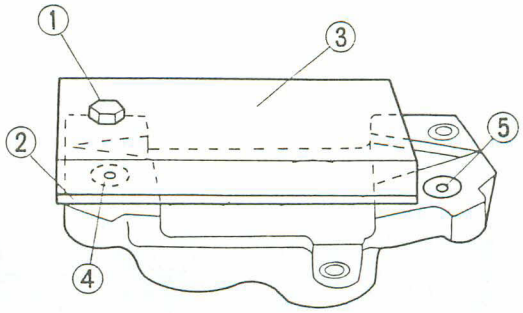
Do not loosen the caliper bolts. Take out only the caliper mounting bolts for caliper removal. Loosening the caliper bolts will cause brake fluid leakage.



A. Banjo Bolt
B. Caliper Bolts (Do not loosen)
C. Caliper Mounting Bolts

Disassembly Notes

Refer to the Base Manual, noting the following.
● To disassemble the front caliper, perform the following.
○ Remove the following.
Brake Pads
Caliper Bolts
Piston Insulators
○ Using compressed air, remove the pistons. One way to remove the pistons is as follows.
○ Install a wooden board more than 10 mm thick and a rubber gasket on the caliper half as shown. Leave one of the oil passages open.



1. Bolt and Nut
2. Rubber Gasket
3. Wooden Board
4. Oil Passage sealed by Rubber Gasket
5. Oil Passage

○ Lightly apply compressed air to the oil passage until the pistons hit the rubber gasket. Block the hose joint opening during this operation if the caliper half has opening.

⚠WARNING

To avoid serious injury, never place your fingers or palm inside the caliper opening. If you apply compressed air into the caliper, the piston may crush your hand or fingers.

Assembly Notes

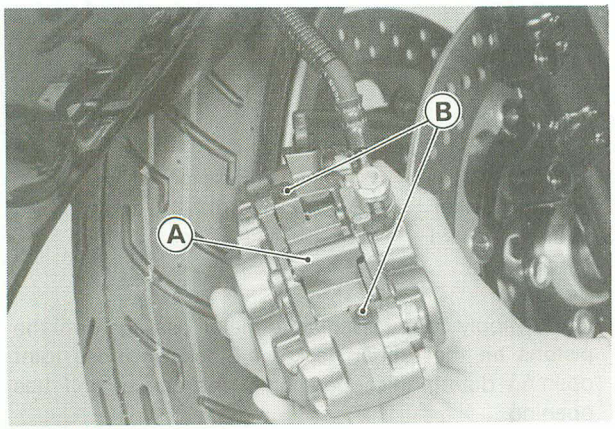
Refer to the Base Manual, noting the following.
● Torque the following (see Exploded View).
Front Caliper Bolts

Brake Pads

Removal

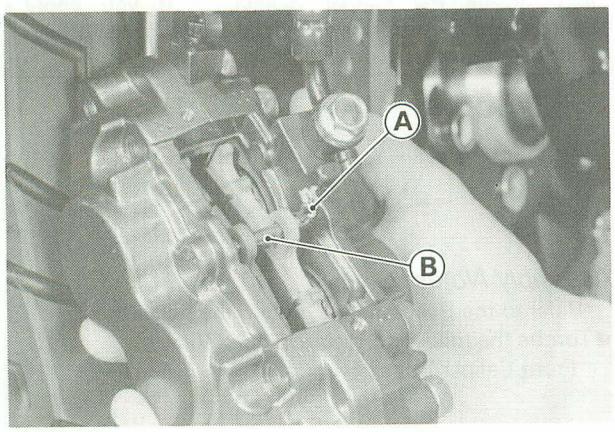
Refer to the Base Manual, noting the following.

● Remove the following to remove the front caliper pads.
Caliper Mounting Bolts
Pad Spring



A. Pad Spring B. Screws

Clip
Pad Pin
Pads



A. Clip B. Pad Pin

Installation Notes

Refer to the Base Manual, noting the following.

● For the front caliper, the pad pin clip must be "outside" of the pads.

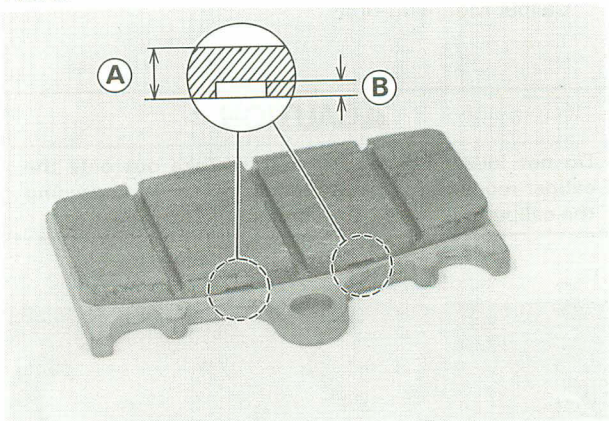
Lining Wear

★If the lining thickness of either pad is less than the service limit, replace both pads in the caliper as a set.

Pad Lining Thickness

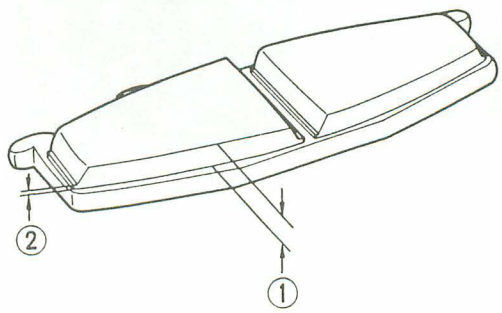
Standard:	**Front**	**4.0 mm**
	Rear	**4.5 mm**
Service Limit:	**1 mm**	

Front:



A. Lining Thickness B. Service Limit

Rear:



1. Lining Thickness 2. Service Limit

Suspension

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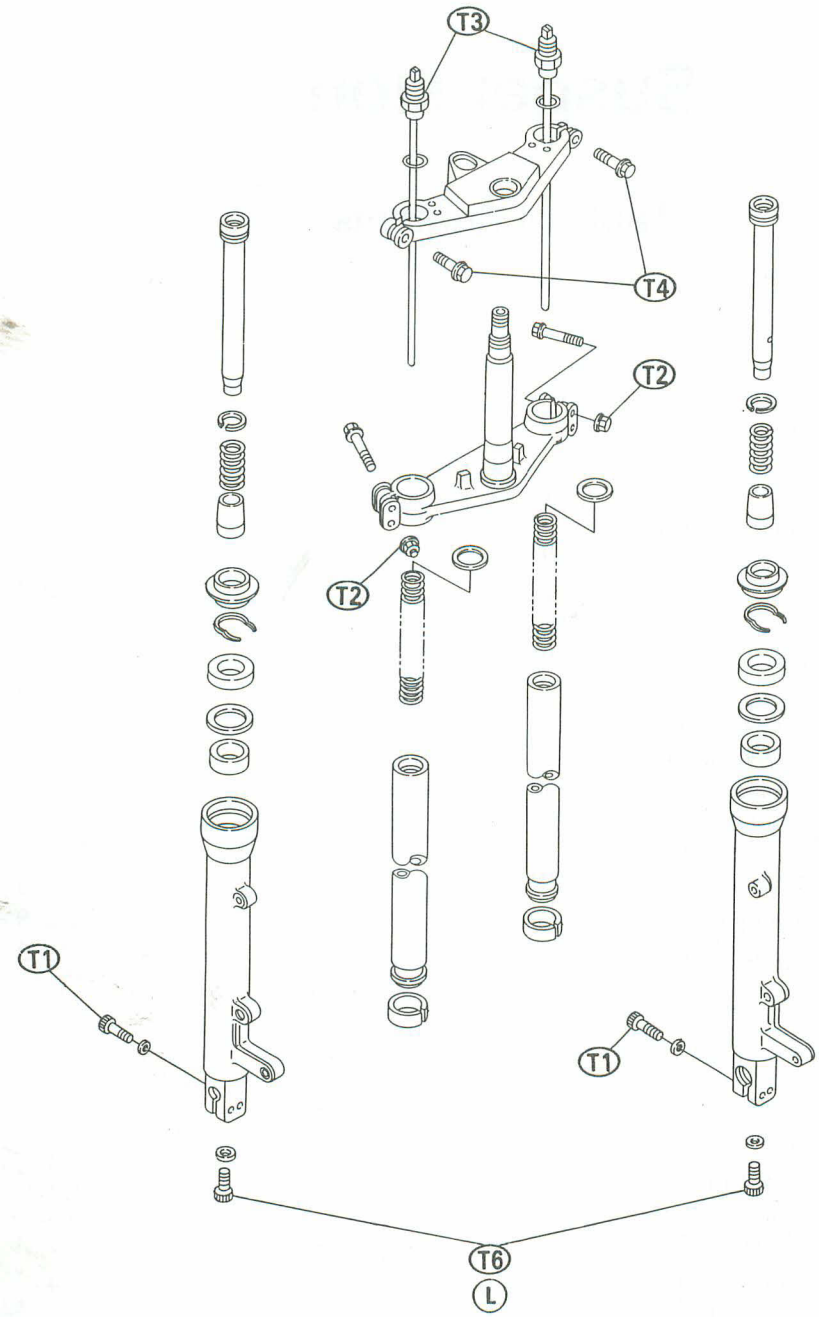
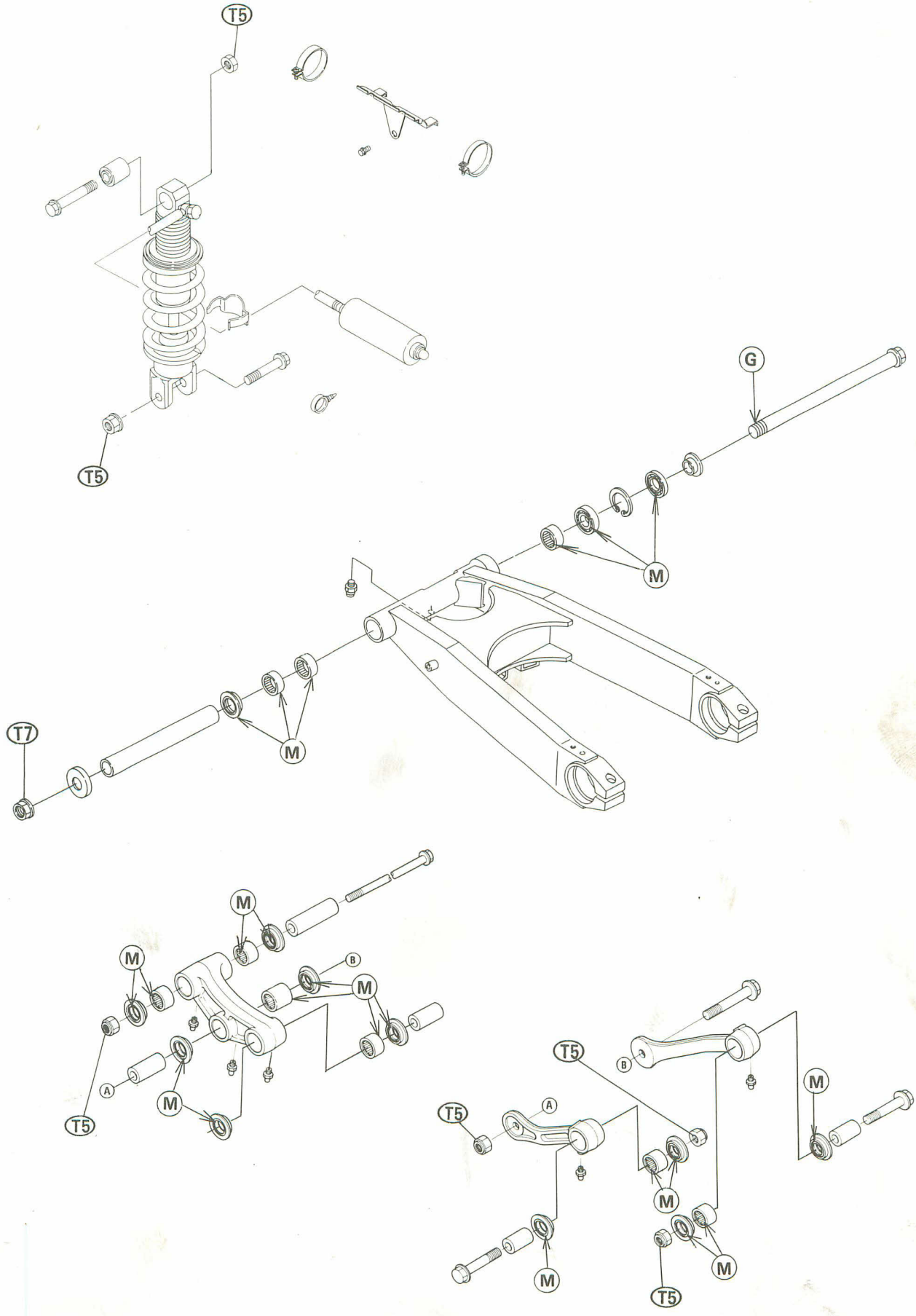
* : Refer to Base Manual

Exploded View



G: Apply grease.
L: Apply non-permanent locking agent.
M: Apply molybdenum disulfide grease.

T1: 20 N-m (2.0 kg-m, 14.5 ft-lb)
T2: 21 N-m (2.1 kg-m, 15.0 ft-lb)
T3: 23 N-m (2.3 kg-m, 16.5 ft-lb)
T4: 28 N-m (2.9 kg-m, 21 ft-lb)
T5: 59 N-m (6.0 kg-m, 43 ft-lb)
T6: 61 N-m (6.2 kg-m, 45 ft-lb)
T7: 88 N-m (9.0 kg-m, 65 ft-lb)

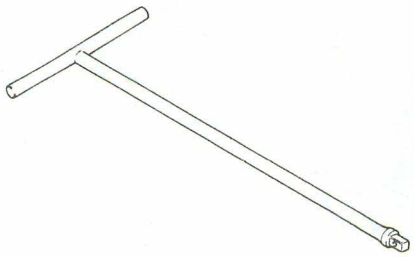

T5
T5
G
M
T7
M
M
M
B
M
A
M
T5
T5
A
B
M
M
M
M
T5

Specifications

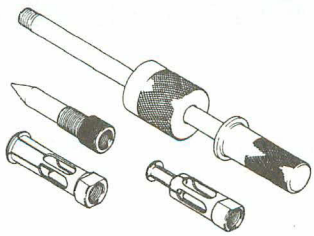
Item	Standard	Service Limit
Front Fork:		
Damper adjuster position	2nd click (clockwise)	1 ~ 4
Spring preload adjuster position	6th mark from top	1 ~ 8
Fork oil: Viscosity	SAE 10W-20	– – –
Amount per unit	458 ±4 mL	– – –
	390 mL: When changing oil	– – –
Fork oil level	149 ±2 mm	
	(Fully compressed, without spring)	– – –
Fork spring free length	438 mm	429 mm
Rear Suspension:		
Rear shock absorber damper adjuster position	#2	1 ~ 4
Rear shock absorber spring preload adjustment	18 mm	
	(compressed from spring free length)	14 ~ 30 mm
Rear shock absorber gas pressure (non-adjustable)	980 kPa (10 kg/cm², 142 psi)	– – –

Special Tools

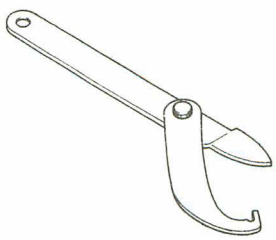
Fork Cylinder Holder Handle: 57001-183



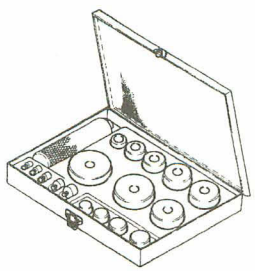
Oil Seal & Bearing Remover: 57001-1058



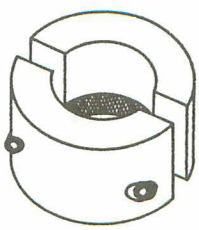
Steering Stem Nut Wrench: 57001-1100



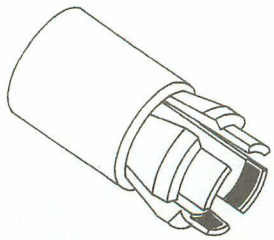
Bearing Driver Set: 57001-1129



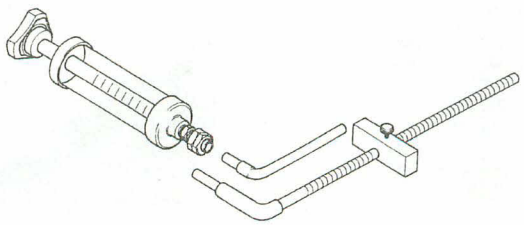
Fork Outer Tube Weight: 57001-1218



Fork Oil Seal Driver: 57001-1219



Oil Syringe: 57001-1290



Hexagon Wrench, Hex 29: 57001-1335

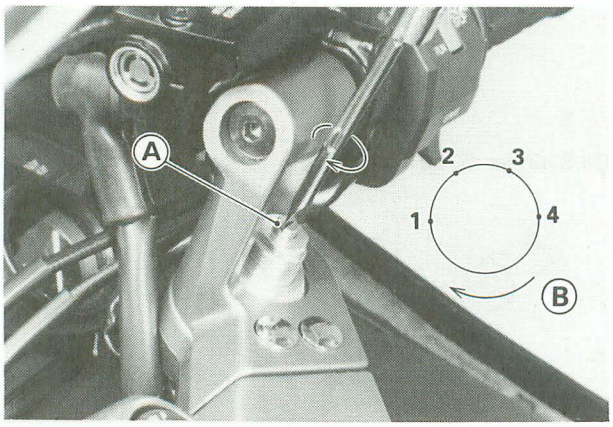
NOTE

○ *Two stem nut wrenches (P/N 57001-1100) are required for servicing.*

Front Fork

Rebound Damping Force Adjustment

●To adjust the rebound damping force, turn the adjuster clockwise until you feel a click. Each adjuster has 4 adjustment clicks. Be sure to turn both adjusters by the same number of clicks.



A. Rebound Damping Force Adjuster
B. Click Position

⚠WARNING

If both adjusters are not adjusted equally, handling may be impaired and a hazardous condition may result.

○The damping force can be left soft for average riding. But it should be adjusted harder for high speed riding or riding with a passenger. If the damping feels too soft or too stiff, adjust it in accordance with the following table.

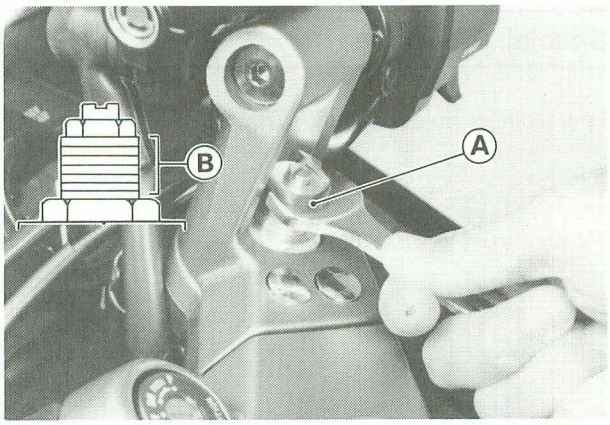
Rebound Damping Force Adjustment

Adjuster Position	Damping Force	Setting	Load	Road	Speed
1	Weak	Soft	Light	Good	Low
↕	↕	↕	↕	↕	↕
4	Strong	Hard	Heavy	Bad	High

○The standard adjuster setting for an average-build rider of 68 kg (150 lb) with no passenger and no accessories is the **2nd click** position.

Spring Preload Adjustment

●Turn the adjuster in to increase spring preload and out to decrease spring preload. Each adjuster has 8 adjustment marks. Be sure to position both adjusters to the same mark.



A. Spring Preload Adjuster B. Adjustment Marks

⚠WARNING

If both adjusters are not adjusted equally, handling may be impaired and a hazardous condition may result.

○The spring preload can be left soft for average riding. But it should be adjusted harder for high speed riding or riding with a passenger. If the spring action feels too soft or too stiff, adjust it in accordance with the following table.

Spring Action

Adjuster Position	Damping Force	Setting	Load	Road	Speed
8	Weak	Soft	Light	Good	Low
↕	↕	↕	↕	↕	↕
1	Strong	Hard	Heavy	Bad	High

○The standard adjuster setting for an average-build rider of 68 kg (150 lb) with no passenger and no accessories is the **6th mark** position from the top.

Fork Oil Change

●Remove the following.
Fork Leg
Fork Top Bolt
Spring Seat
Main Spring
●Pour out the fork oil into a suitable container. Pump as necessary to empty out all the oil.
●Pour in the specified type and amount of oil.

Front Fork Oil

Viscosity: SAE 10W-20
Amount per side:
When changing oil: 390 mL
After disassembly and completely dry: 458 ±4 mL

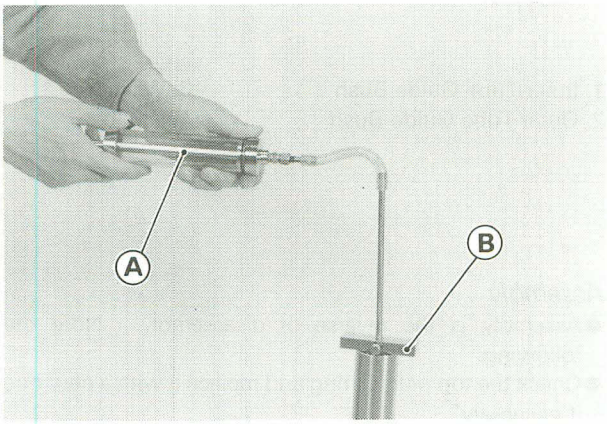
★If necessary, measure the oil level as follows.
○Hold the outer tube vertically in a vise.
○Pump the inner tube several times to expel air bubbles.

○Wait until the oil level settles.
○With the fork fully compressed, insert a tape measure or rod into the inner tube, and measure the distance from the top of the inner tube to the oil.

NOTE

○*Fork oil level may also be measured using the oil syringe (special tool).*

○Set the oil syringe stopper so that its lower side shows the oil level distance specified.
○Put the gauge tube into the inner tube and position the stopper across the top end of the inner tube.



A. Oil Syringe: 57001-1290
B. Stopper

NOTE

○*The gauge tube is graduated in 1 cm divisions.*
○*The syringe body is graduated in 10 mL division, excluding the gauge tube which is about 15 mL capacity.*

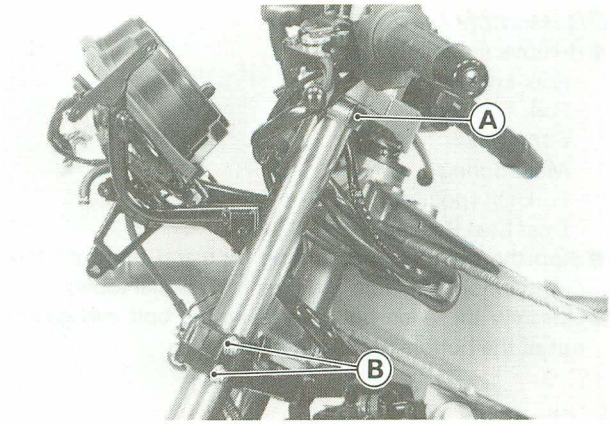
○Pull the handle slowly to draw out the excess oil until no more oil comes up the tube.
★If no oil drawn out, there is not enough oil in the inner tube. Pour in some more oil, then draw out the excess.

Fork Oil Level
(Fully compressed without spring)
149 ±2 mm

★If the oil is above or below the specified level, remove or add oil and recheck the oil level.
●Change the oil of the other fork leg in the same manner.

Removal (each fork leg)

●Loosen the fork top plug beforehand if the fork leg is to be disassembled.
●Remove the following.
Handlebar Holder
Front Wheel
Front Fender
Fairing
Fork Clamp Bolts and Nuts (upper and lower, loosen)

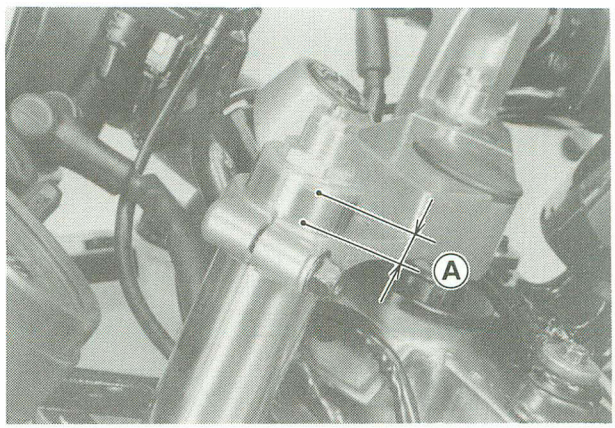


A. Fork Clamp Bolt B. Fork Clamp Nuts

●With a twisting motion, work the fork leg down and out.

Installation

●Installation is the reverse of removal. Note the following.
●Install the fork leg so that the top end of the inner tube projects 11.5 mm from the upper surface of the stem head.



A. 11.5 mm

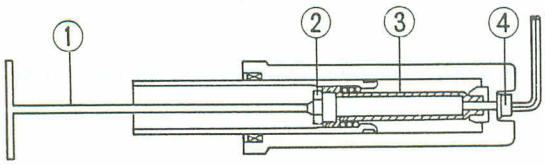
●Torque the following (see Exploded View).
Fork Clamp Bolts and Nuts
Fork Top Bolt (if loosened)
Handlebar Holder Bolts
●Adjust the following.
Rebound Damping Force
Spring Preload

Disassembly

● Remove the following.
Fork Leg
Fork Top Bolt
Spring Seat
Main Spring
Fork Oil (pour out)
Dust Seal Retainer

● Stop the cylinder from turning by using the front fork cylinder holder handle and wrench (special tools).

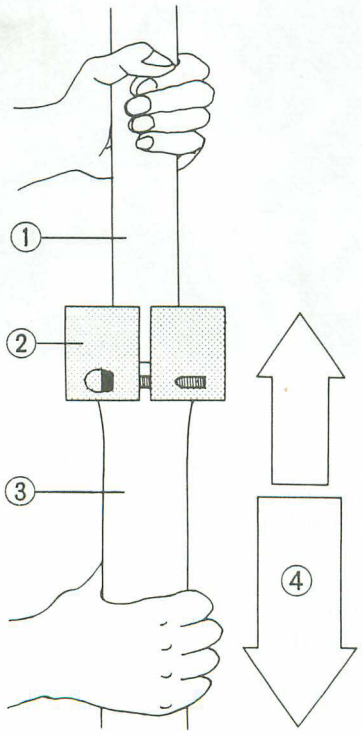
● Unscrew the Allen bolt, then take the bolt and gasket out of the bottom of the outer tube.



1. Handle: 57001-183
2. Wrench: 57001-1335
3. Cylinder
4. Allen Bolt

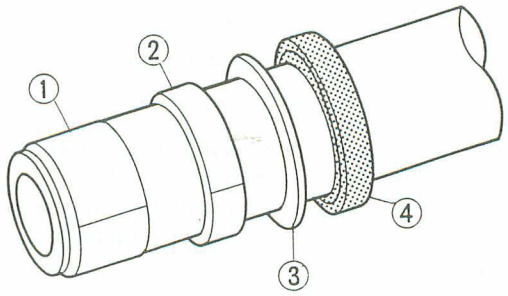
● Use the fork outer tube weight (special tool) to separate the inner tube from the outer tube.

○ Holding the inner tube by hand in a vertical position, pull down the outer tube several times to pull out the inner tube.



1. Inner Tube
2. Weight: 57001-1218
3. Outer Tube
4. Pull down.

○ The oil seal, washer, and guide bushes come off with the inner tube.



1. Inner Tube Guide Bush
2. Outer Tube Guide Bush
3. Washer
4. Oil Seal

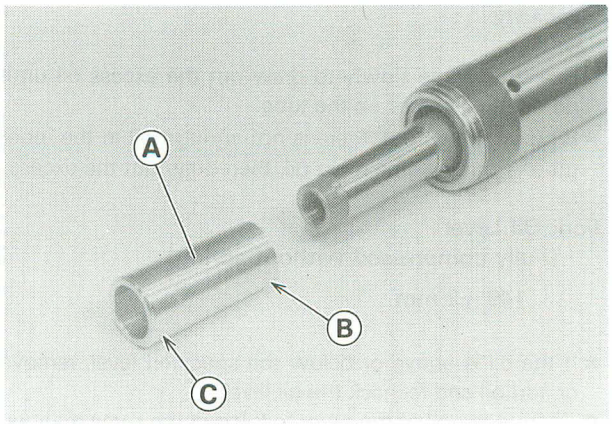
Assembly

● Assembly is the reverse of disassembly. Note the following.

● Check the top plug O-ring and replace it with a new one if necessary.

● Replace the following parts removed with a new one.
Guide Bushes
Oil Seal
Bottom Allen Bolt Gasket

● Install the cylinder base so that the small diameter end of it comes to the cylinder.

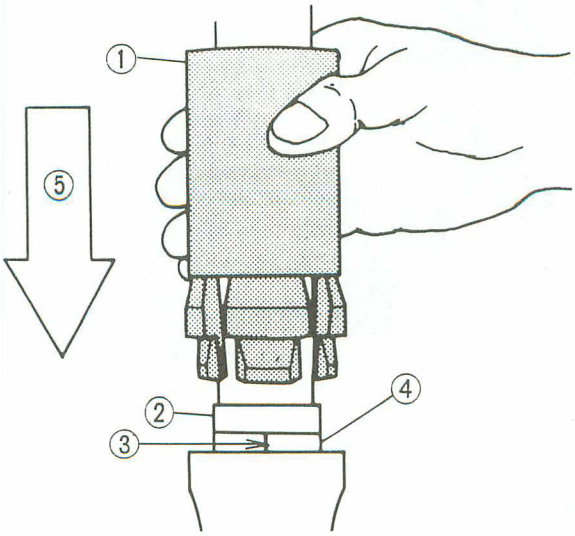


A. Cylinder Base
B. Small Diameter End
C. Large Diameter End

● Apply a non-permanent locking agent to the following.
Bottom Allen Bolt Threads

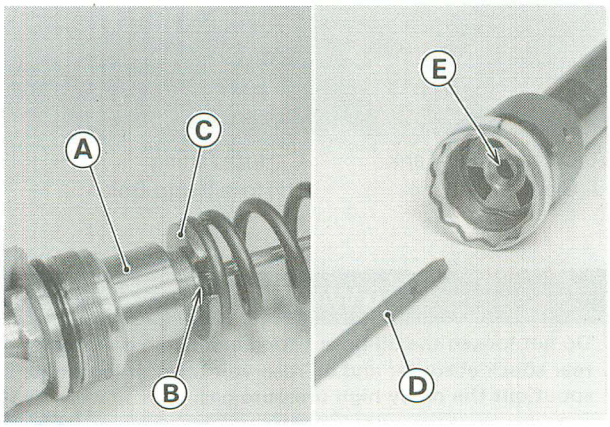
● Torque the following (see Exploded View).
Bottom Allen Bolt
Fork Top Bolt (after fork leg installation)

● Install the guide bush (with a used guide bush on it) by tapping the used guide bush with the fork oil seal driver (special tool) until it stops. The split of the bush must be faced toward the side of the vehicle.



1. Driver: 57001-1219
2. Used Guide Bush
3. Split (toward the right or left)
4. New Guide Bush
5. Tap.

- Pour in the type and amount of fork oil specified.
- Install the top bolt so that the rod of it inserts into the center hole of the damping valve. The spring seat must be fitted onto the stepped portion of the top bolt.



A. Top Bolt
B. Stepped Portion
C. Spring Seat
D. Rod
E. Valve Center Hole

Rear Suspension

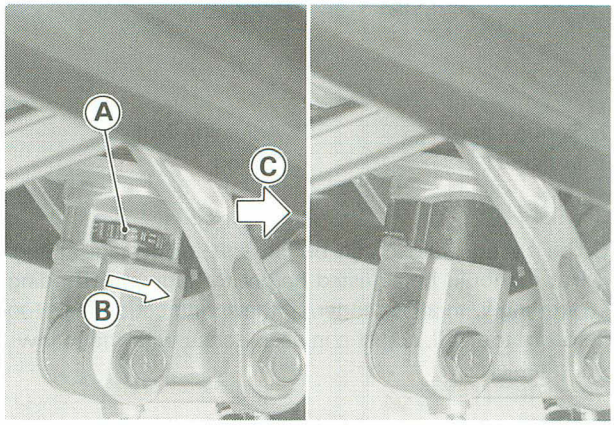
Rear Shock Absorber:

Rebound Damping Force Adjustment

- Pull the plastic cover off the lower end of the shock absorber.
- To adjust the rebound damping force, turn the adjuster to the right to the desired number until you feel a click.

NOTE

○ *The damping adjuster will turn only to the right as indicated on it.*



A. Adjuster
B. Turning Direction
C. Front

○ The damping force can be left soft for average riding. But it should be adjusted harder for high speed riding or riding with a passenger. If the damping feels too soft or too stiff, adjust it in accordance with the following table.

Rebound Damping Force Adjustment

Adjuster Position	Damping Force	Setting	Load	Road	Speed
1	Weak	Soft	Light	Good	Low
↕	↕	↕	↕	↕	↕
4	Strong	Hard	Heavy	Bad	High

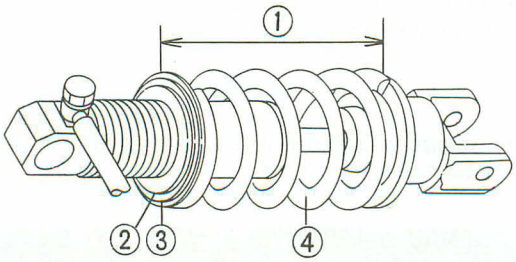
○ The standard adjuster setting for an average-build rider of 68 kg (150 lb) with no passenger and no accessories is **(2)**.

Spring Preload Adjustment

- Remove the rear shock absorber.
- Loosen the locknut and turn out the adjusting nut to free the spring using stem nut wrenches (special tools: 57001-1100).
- Measure the spring free length.
- Turn in the adjusting nut to the desired position and tighten the locknut.

Spring Preload Setting

Standard: Spring free length minus 18 mm
Usable Range: Spring free length minus 14 to 30 mm (weaker to stronger)



1. Spring Length
2. Locknut
3. Adjusting Nut
4. Spring

○The spring preload can be left soft for average riding. But it should be adjusted harder for high speed riding or riding with a passenger. If the spring action feels too soft or too stiff, adjust it in accordance with the following table.

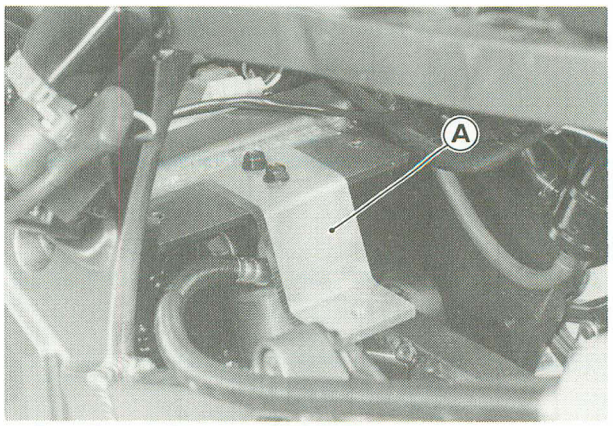
Spring Action

Spring Force	Setting	Load	Road	Speed
Weak	Soft	Light	Good	Low
↕	↕	↕	↕	↕
Strong	Hard	Heavy	Bad	High

○The standard adjusting nut setting for an average-build rider of 68 kg (150 lb) with no passenger and no accessories is **18 mm** of spring preload from the free length.

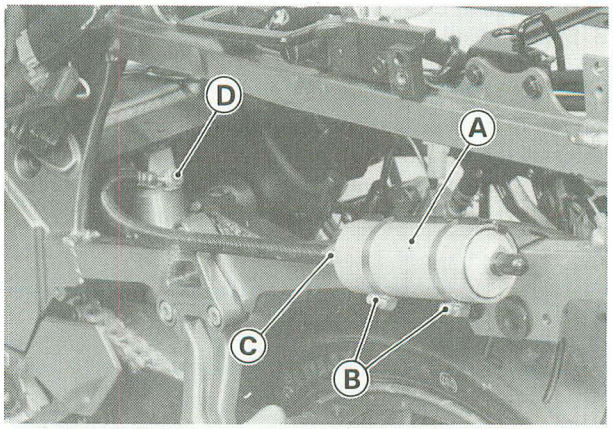
Removal

●Remove the following.
Side Covers and Tail Cover
Rear Fender
Fuel Tank
Fuel Tank Rear Mounting Bracket
Rear Fender Front Mounting Bracket



A. Rear Fender Front Mounting Bracket

●Loosen the clamps and remove the oil reservoir tank from the bracket.



A. Oil Reservoir Tank
B. Clamps
C. Hose Fitting
D. Hose Banjo Bolt

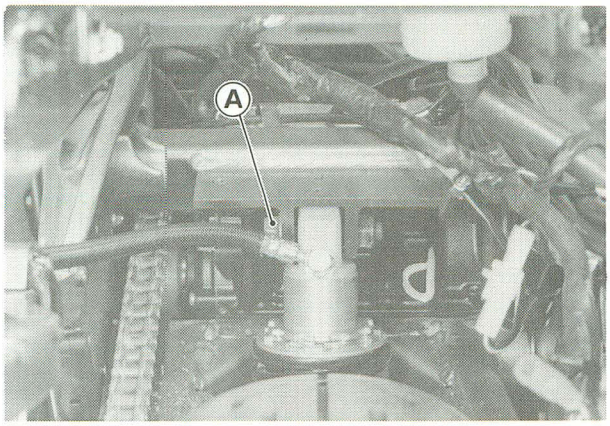
⚠WARNING

Do not loosen the oil hose fitting and banjo bolt on the rear shock absorber and oil reservoir tank. If loosened, spout out the oil by high pressure gas.

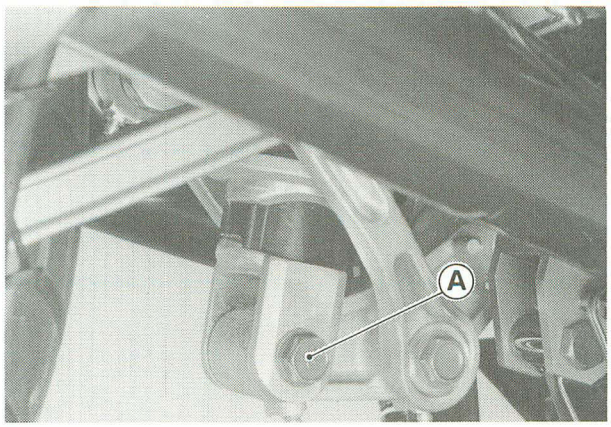
●Remove the following.
Rear Shock Absorber Mounting Bolts

⚠CAUTION

When pulling out the mounting bolts, lift the rear wheel slightly. Forcing or tapping on a bolt could damage the bolt, sleeve, and bearing.



A. Upper Mounting Bolt



A. Lower Mounting Bolt

Installation

- Installation is the reverse of removal. Note the following.
- Adjust the following.
  Rebound Damping Force
  Spring Preload
- Install the rear shock absorber on the frame so that the oil hose banjo bolt faces to rearward, and the rebound damping force adjuster cover faces toward the right side.
- Torque the following (see Exploded View).
  Rear Shock Absorber Mounting Nuts

Scrapping

⚠WARNING

Since the rear shock absorber contains nitrogen gas, do not incinerate the rear shock absorber without first releasing the gas or it may explode.

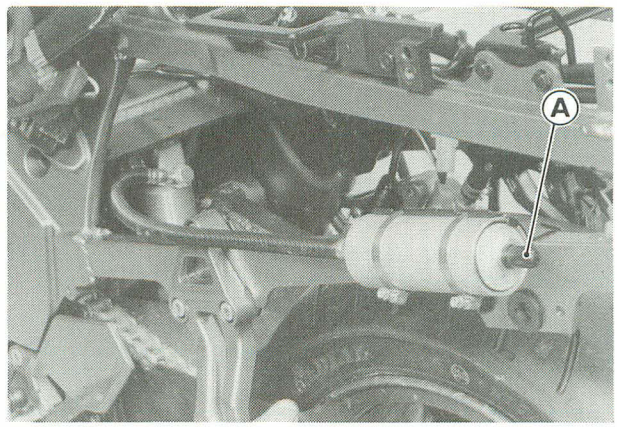
- Before a rear shock absorber is scrapped, pull out the oil reservoir tank valve cap and release the nitrogen gas completely.

NOTE

○ *The valve cap is press-fitted on the oil reservoir tank.*

⚠WARNING

Be sure to point the valve away from you when releasing nitrogen gas pressure. The gas may blow out the dust or oil.



A. Valve Cap

Steering

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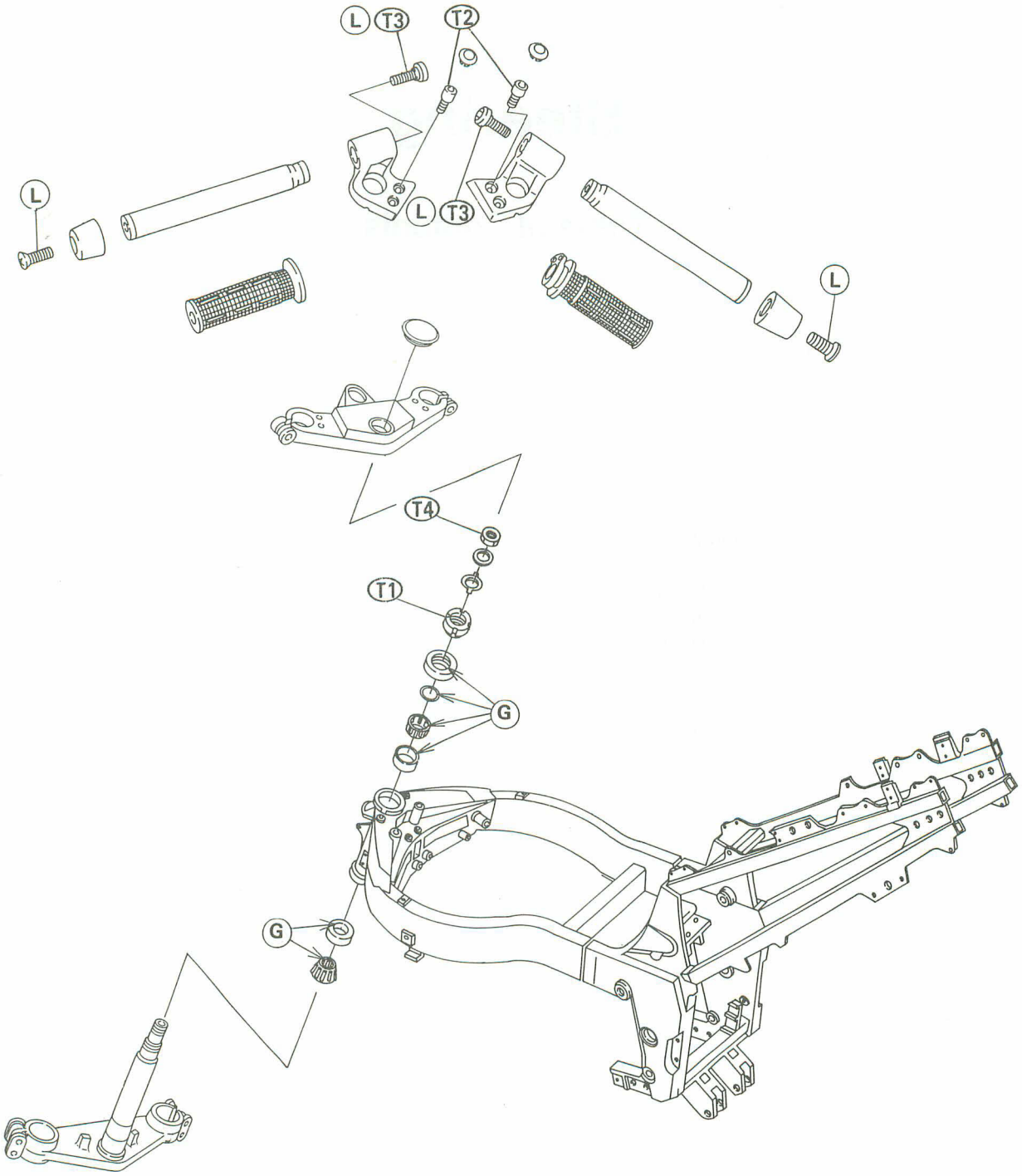
* : Refer to Base Manual

Exploded View

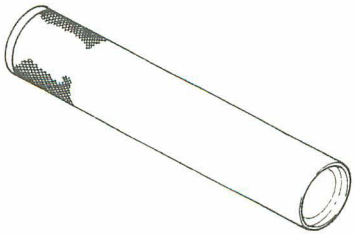


G: Apply grease.
L: Apply non-permanent locking agent

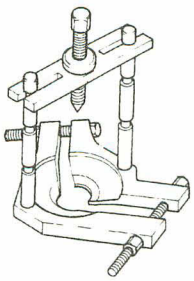
T1: 4.9 N-m (0.50 kg-m, 43 in-lb)
T2: 20 N-m (2.0 kg-m, 14.5 ft-lb)
T3: 29 N-m (3.0 kg-m, 22 ft-lb)
T4: 39 N-m (4.0 kg-m, 29 ft-lb)

Special Tools

Stem Bearing Driver: 57001-137



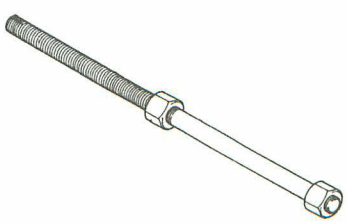
Bearing Puller: 57001-158



Bearing Puller Adapter: 57001-317

Stem Bearing Driver Adapter: 57001-1074

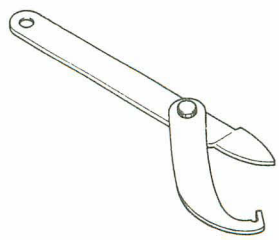
Head Pipe Outer Race Press Shaft: 57001-1075



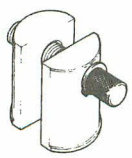
Head Pipe Outer Race Driver: 57001-1076

Head Pipe Outer Race Driver: 57001-1077

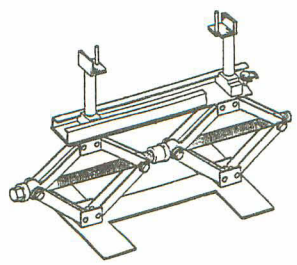
Steering Stem Nut Wrench: 57001-1100



Head Pipe Outer Race Remover: 57001-1107



Jack: 57001-1238



Frame

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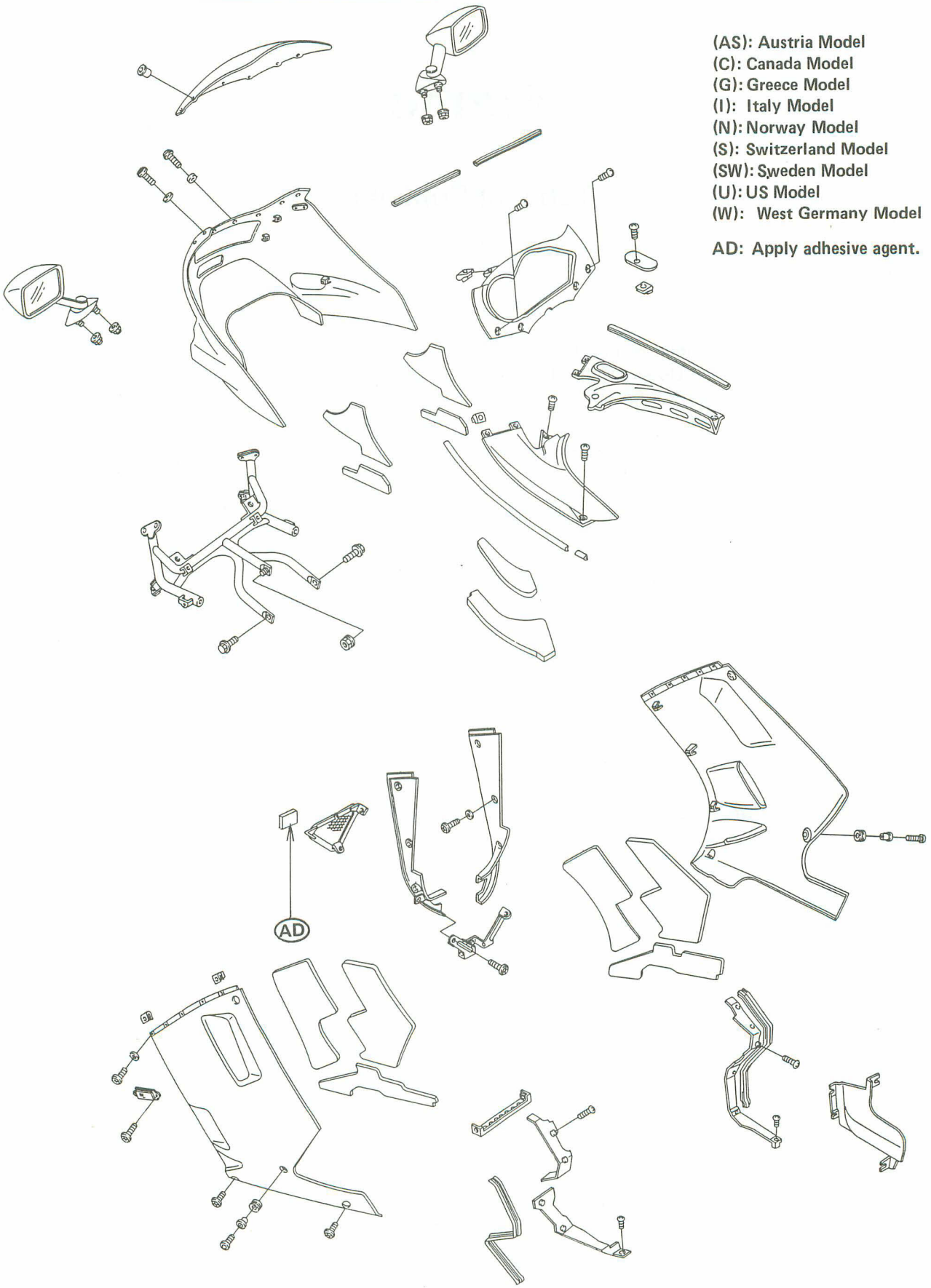
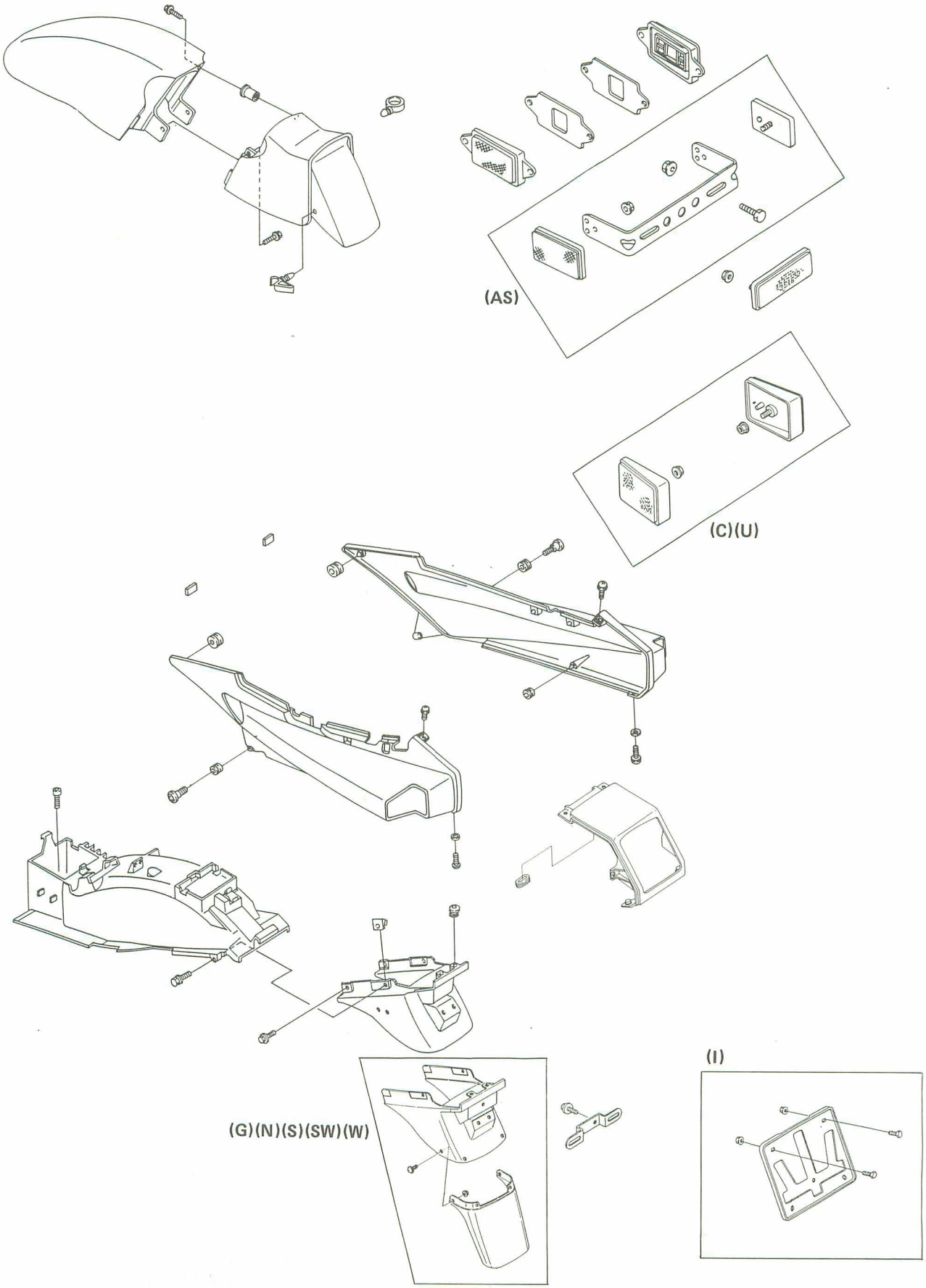
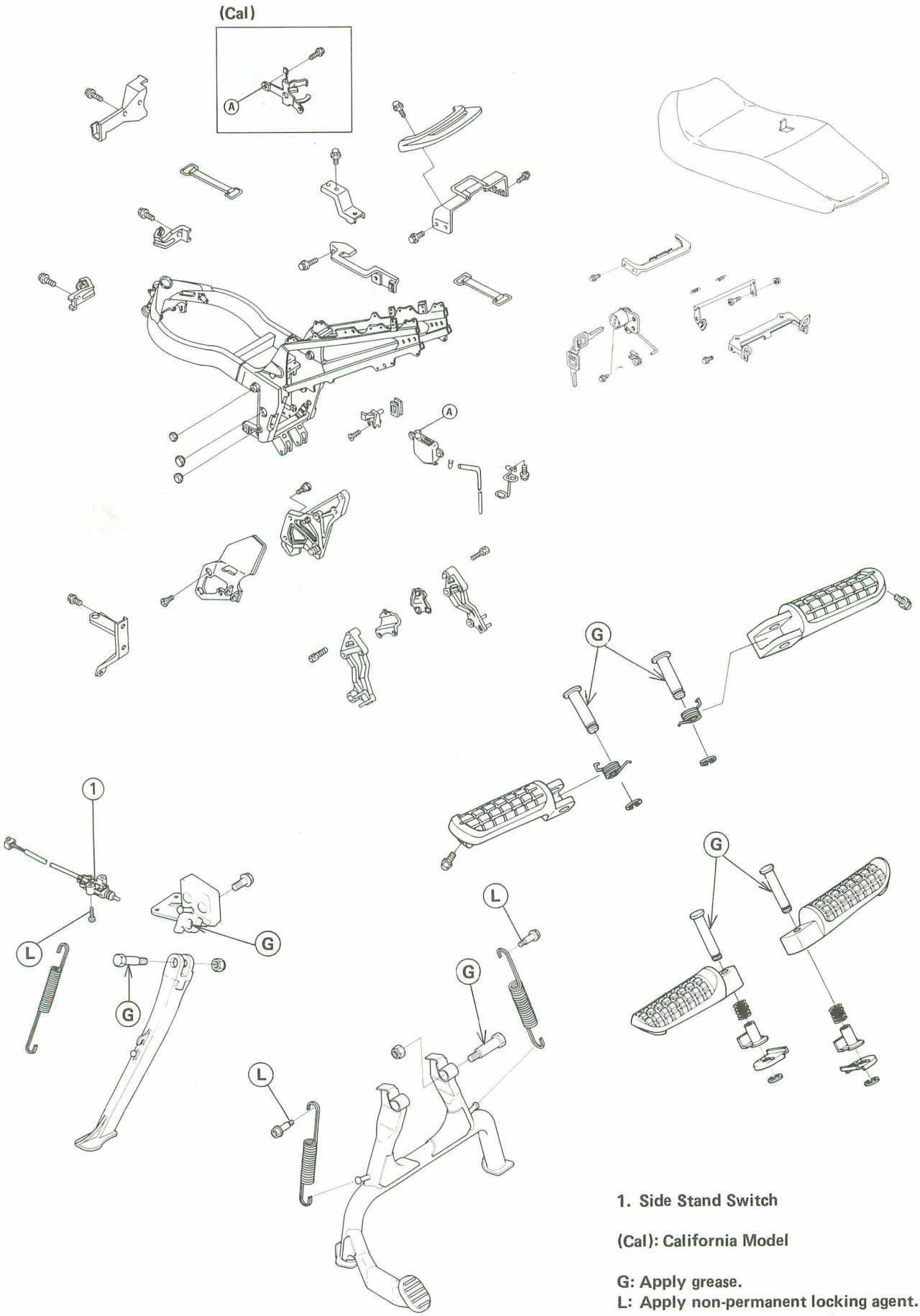
Exploded View




(AS)
(C)(U)
(G)(N)(S)(SW)(W)
(I)



1. Side Stand Switch

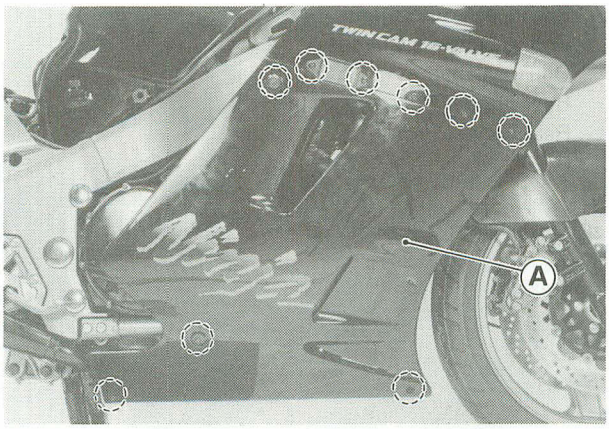
(Cal): California Model

G: Apply grease.
L: Apply non-permanent locking agent.

Fairings

Lower Fairing Removal

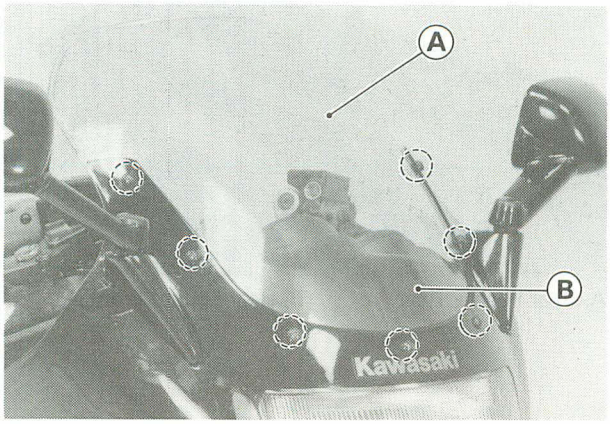
● Remove the following.
Lower Fairings (left and right)



A. Lower Fairing

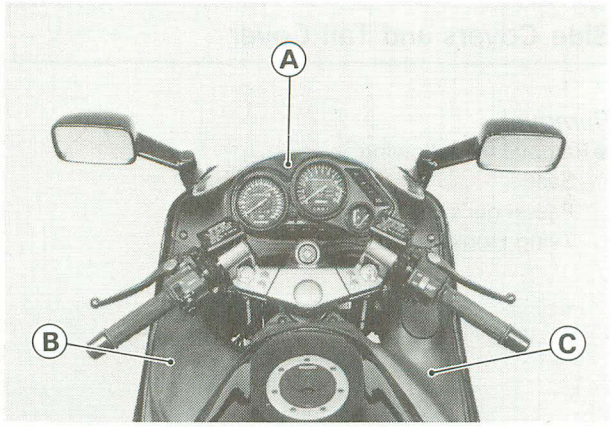
Inner and Upper Fairing Removal

● Before removing the front inner fairing, remove the windshield.

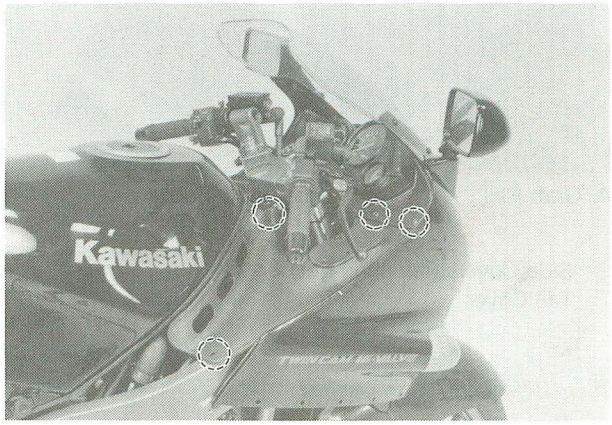


A. Windshield B. Front Inner Fairing

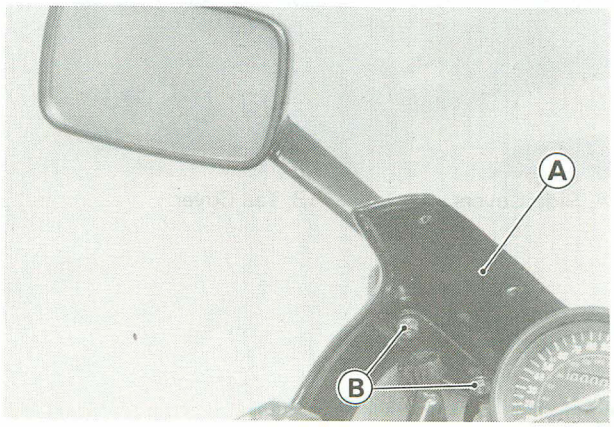
● Remove the following.
Inner Fairings (front, left, and right)



A. Front Inner Fairing C. Right Inner Fairing
B. Left Inner Fairing



Rear View Mirrors (left and right)
Upper Fairing

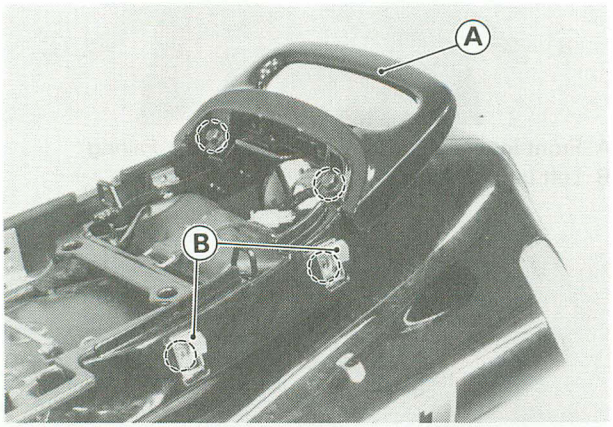


A. Upper Fairing B. Mirror Mounting Nuts

Side Covers and Tail Cover

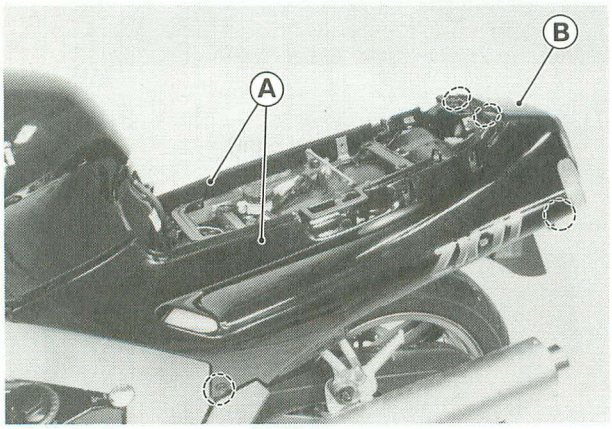
Removal

● Remove the following.
Seat
Passenger's Grab Rail
Tying Hooks



A. Grab Rail B. Tying Hooks

Side Covers (left and right)
Tail Cover

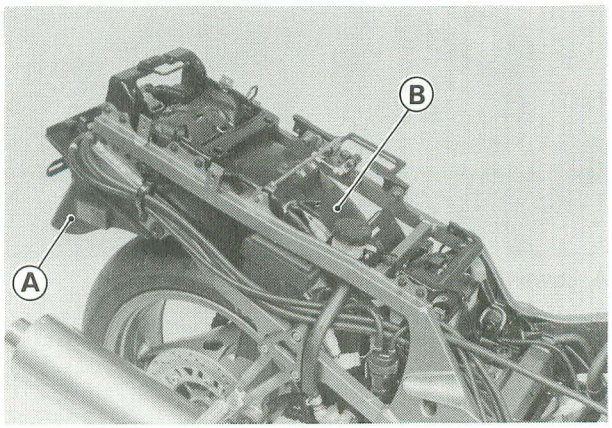


A. Side Covers B. Tail Cover

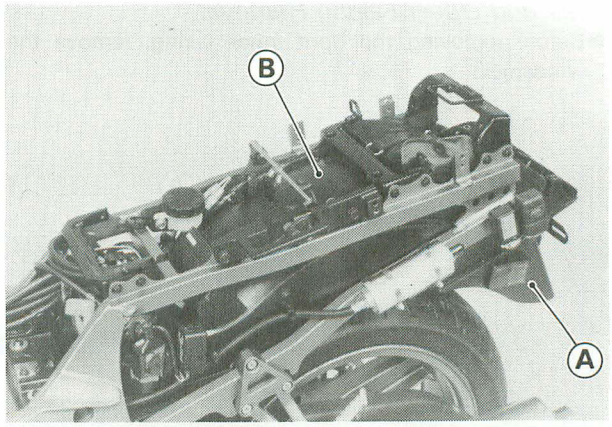
Fenders

Rear Fender Removal

● Remove the following.
Seat
Side Covers
Tail Cover
Electrical Components
Wiring Harness Clamps
Oil Hose Clamps
Rear Fender Rear
Rear Fender Front



A. Rear Fender Rear B. Rear Fender Front



A. Rear Fender Rear B. Rear Fender Front

Electrical System

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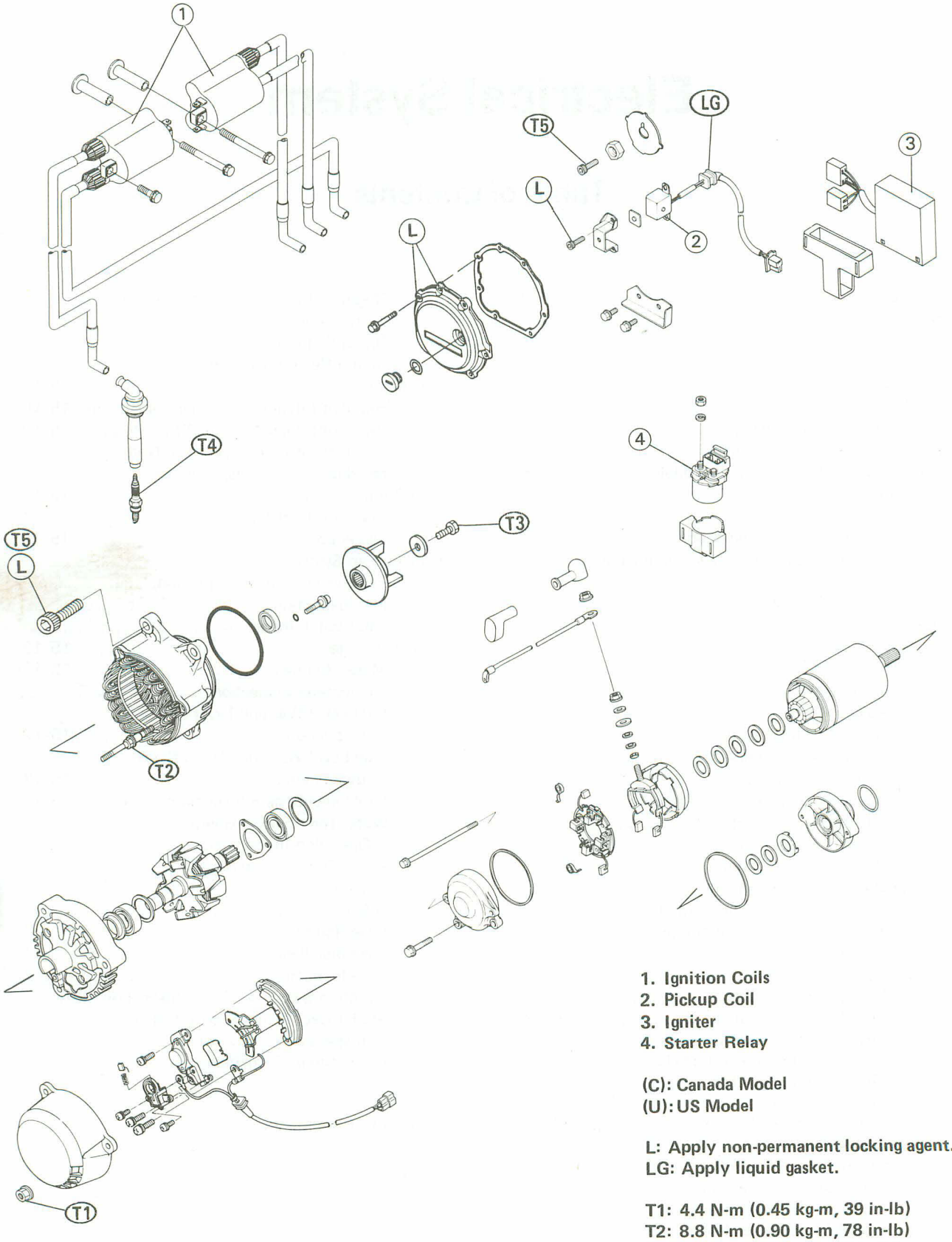
* : Refer to Base Manual

Exploded View

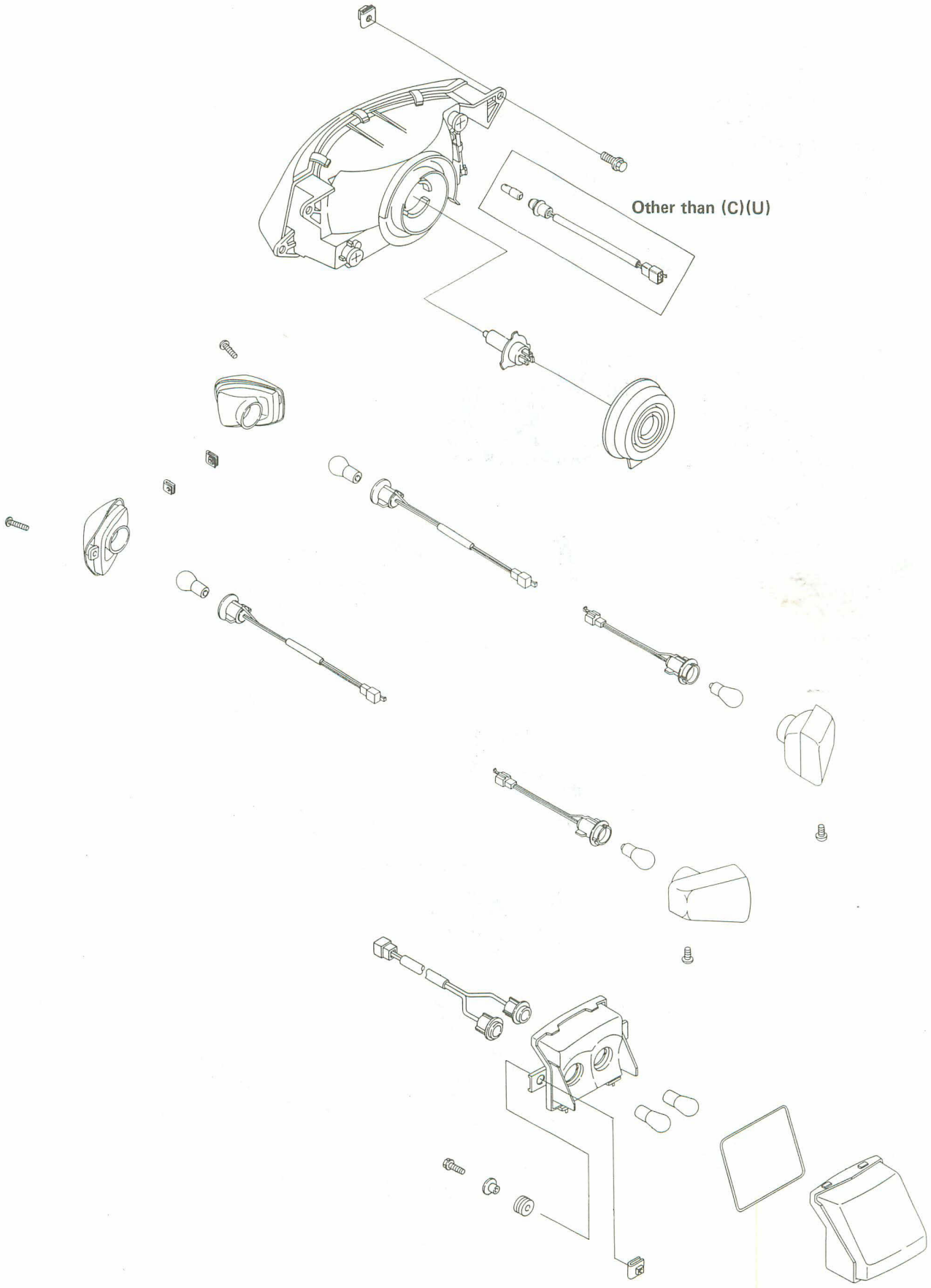


1. Ignition Coils
2. Pickup Coil
3. Igniter
4. Starter Relay

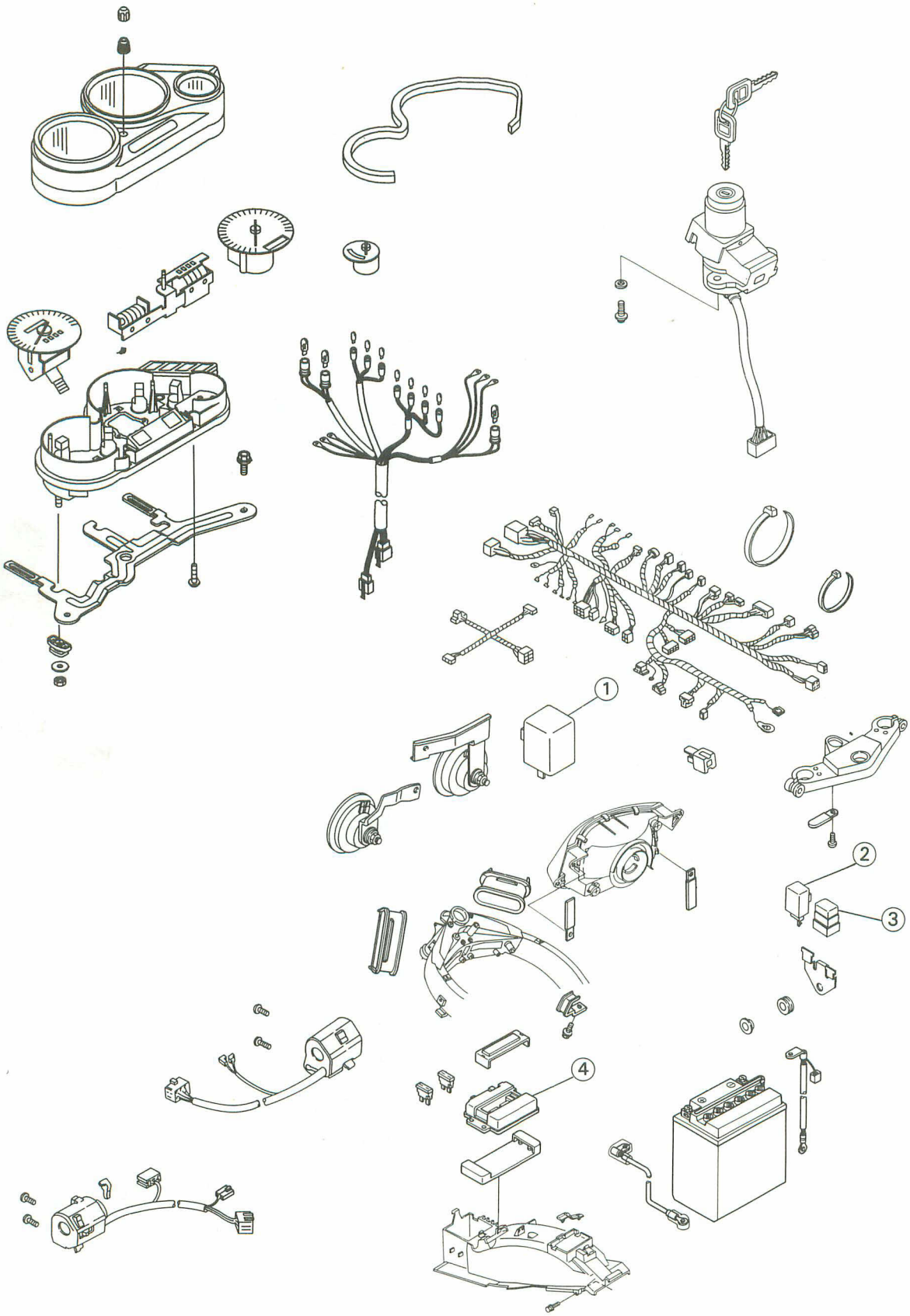
(C): Canada Model
(U): US Model

L: Apply non-permanent locking agent.
LG: Apply liquid gasket.

T1: 4.4 N-m (0.45 kg-m, 39 in-lb)
T2: 8.8 N-m (0.90 kg-m, 78 in-lb)
T3: 9.8 N-m (1.0 kg-m, 87 in-lb)
T4: 14 N-m (1.4 kg-m, 10.0 ft-lb)
T5: 25 N-m (2.5 kg-m, 18.0 ft-lb)


Other than (C)(U)

1. Turn Signal Relay
2. Fuel Level Warning Light Relay
3. Fuel Level Warning Circuit Relay
4. Junction Box



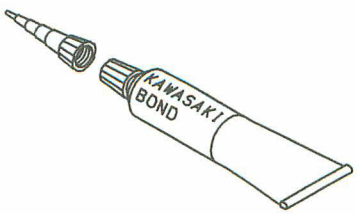
Specifications

Item	Standard	Service Limit
Battery:		
Type	12 V 14 Ah	– – –
Specific gravity	1.280 @20°C (68°F)	– – –
Alternator:		
Charging voltage	14.5 V, Night @4 000 r/min (rpm)	– – –
Rotor coil resistance	About 4 Ω	– – –
Stator coil resistance	Less than 1.0 Ω	– – –
Slip ring diameter	14.4 mm	14.0 mm
Carbon brush length	10.5 mm	4.5 mm
Ignition System:		
Pickup coil air gap	0.7 mm	– – –
Pickup coil resistance	380 ~ 570 Ω	– – –
Ignition coil:		
3 needle arcing distance	6 mm or more	– – –
Primary winding resistance	2.3 ~ 3.5 Ω	– – –
Secondary winding resistance	12 ~ 18 kΩ	– – –
Spark plug:		
Standard plug	NGK CR9E or ND U27ESR-N, (U) NGK C9E or ND U27ES-N	– – –
Plug gap	0.7 ~ 0.8 mm	– – –
Electric Starter System:		
Starter motor carbon brush length	12.0 ~ 12.5 mm	6 mm
Starter motor commutator diameter	28 mm	27 mm
Cooling Fan System:		
Fan switch: OFF → ON	96 ~ 100°C (205 ~ 212°F)	– – –
ON → OFF	91 ~ 95°C (196 ~ 203°F)	– – –
Meters, Gauge:		
Water temperature sensor resistance	80°C (176°F) : about 52 Ω	– – –
	100°C (212°F) : about 27 Ω	– – –

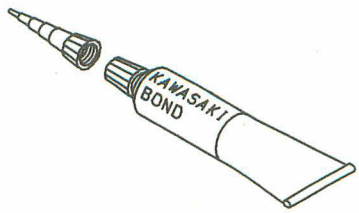
(U) : US Model

Sealant

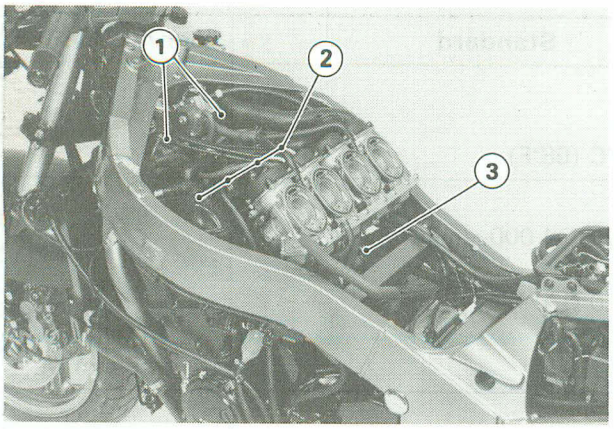
Kawasaki Bond (Silicone Sealant): 56019-120

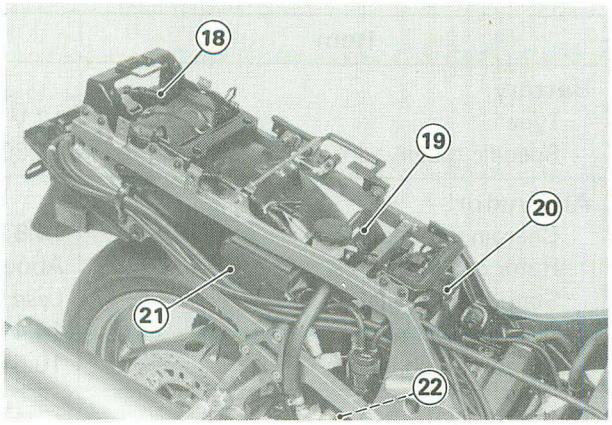


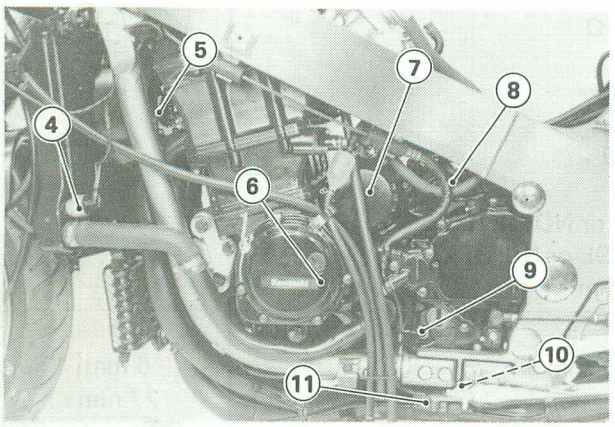
Kawasaki Bond (Liquid Gasket – Black): 92104-1003

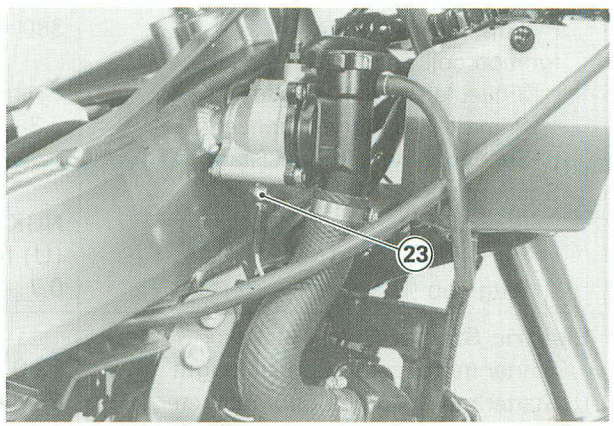


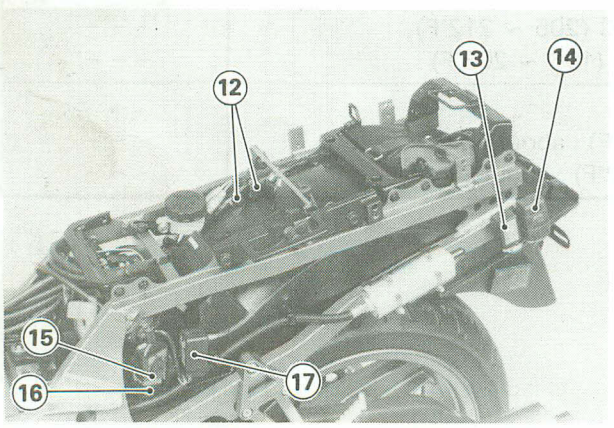
Parts Location

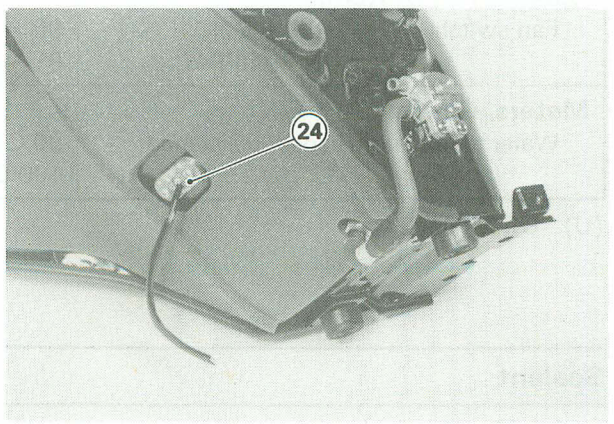






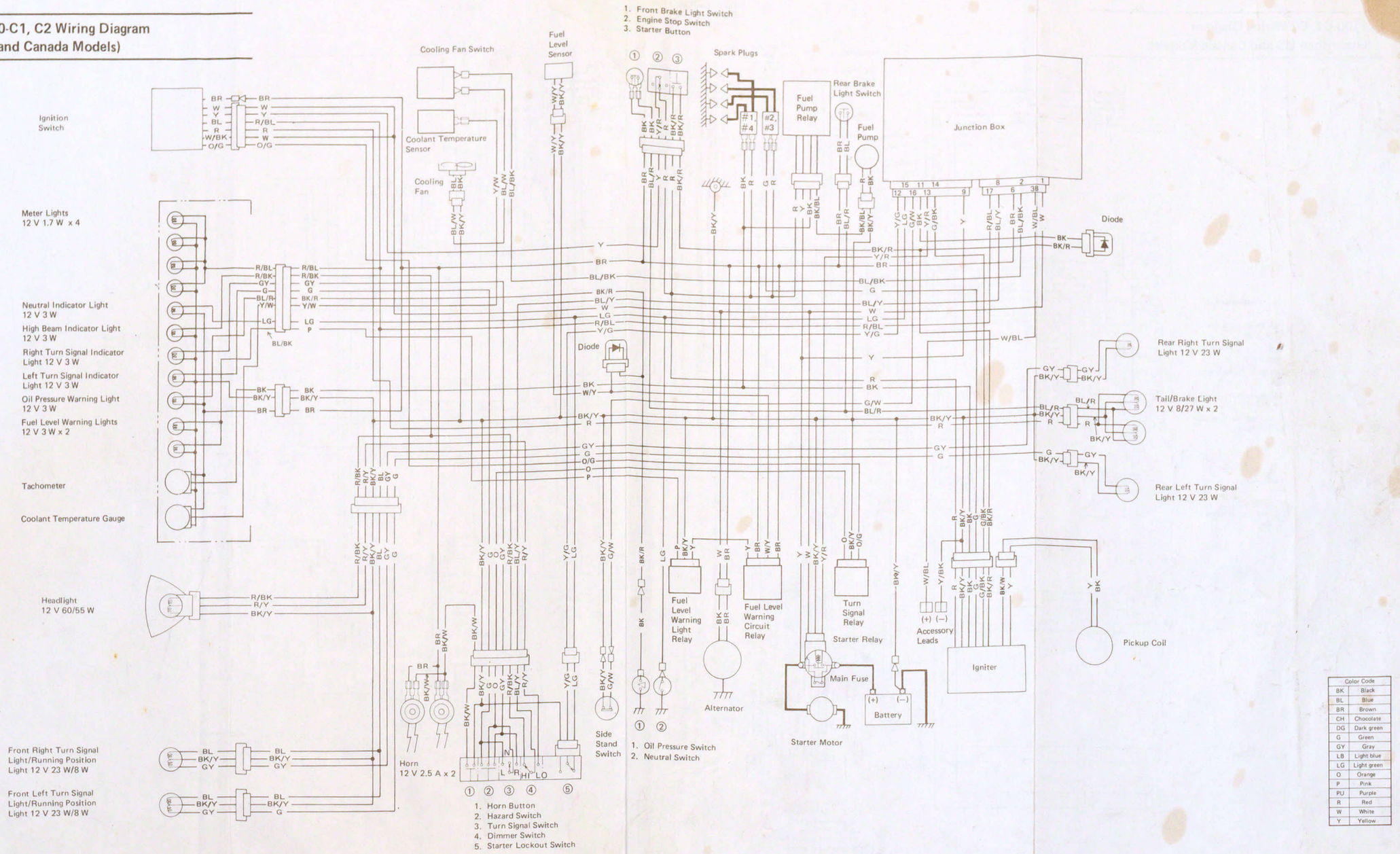






1. Ignition Coils
2. Spark Plugs
3. Fuel Pump
4. Radiator Fan Switch
5. Radiator Fan
6. Pickup Coil
7. Alternator
8. Starter Motor
9. Neutral Switch
10. Oil Pressure Switch
11. Side Stand Switch
12. Diodes
13. Fuel Level Warning Light Relay
14. Fuel Level Warning Circuit Relay
15. Main Fuse
16. Starter Relay
17. Turn Signal Relay
18. Fuel Pump Relay
19. Junction Box
20. Battery
21. IC Igniter
22. Rear Brake Light Switch
23. Water Temperature Sensor
24. Fuel Level Sensor

ZX1100-C1, C2 Wiring Diagram (US and Canada Models)



Color Code	
BK	Black
BL	Blue
BR	Brown
CH	Chocolate
DG	Dark green
G	Green
GY	Gray
LB	Light blue
LG	Light green
O	Orange
P	Pink
PU	Purple
R	Red
W	White
Y	Yellow

LEFT HANDLEBAR SWITCH CONNECTIONS

Starter Lockout Switch			
Color	BK/Y	Y/G	LG
Released		○—○	
Pulled in	○—○		

Horn Button		
Color	BK/Y	BK/W
ON (Push)	○—○	

Dimmer Switch			
Color	R/BK	BL/Y	R/Y
HI	○—○		
LO		○—○	

Turn Signal Switch			
Color	GY	O	G
R	○—○		
N			
L		○—○	

Hazard Switch			
Color	GY	O	G
ON	○—○	○—○	○—○

IGNITION SWITCH CONNECTIONS

	Ignition	Battery	Ignition	Tail 1	Tail 2	Battery	Tail 3
Color	BR	W	Y	BL	R	W/BK	O/G
OFF, LOCK							
ON	○—○	○—○	○—○	○—○	○—○	○—○	○—○
P (PARK)		○—○		○—○	○—○	○—○	

RIGHT HANDLEBAR SWITCH CONNECTIONS

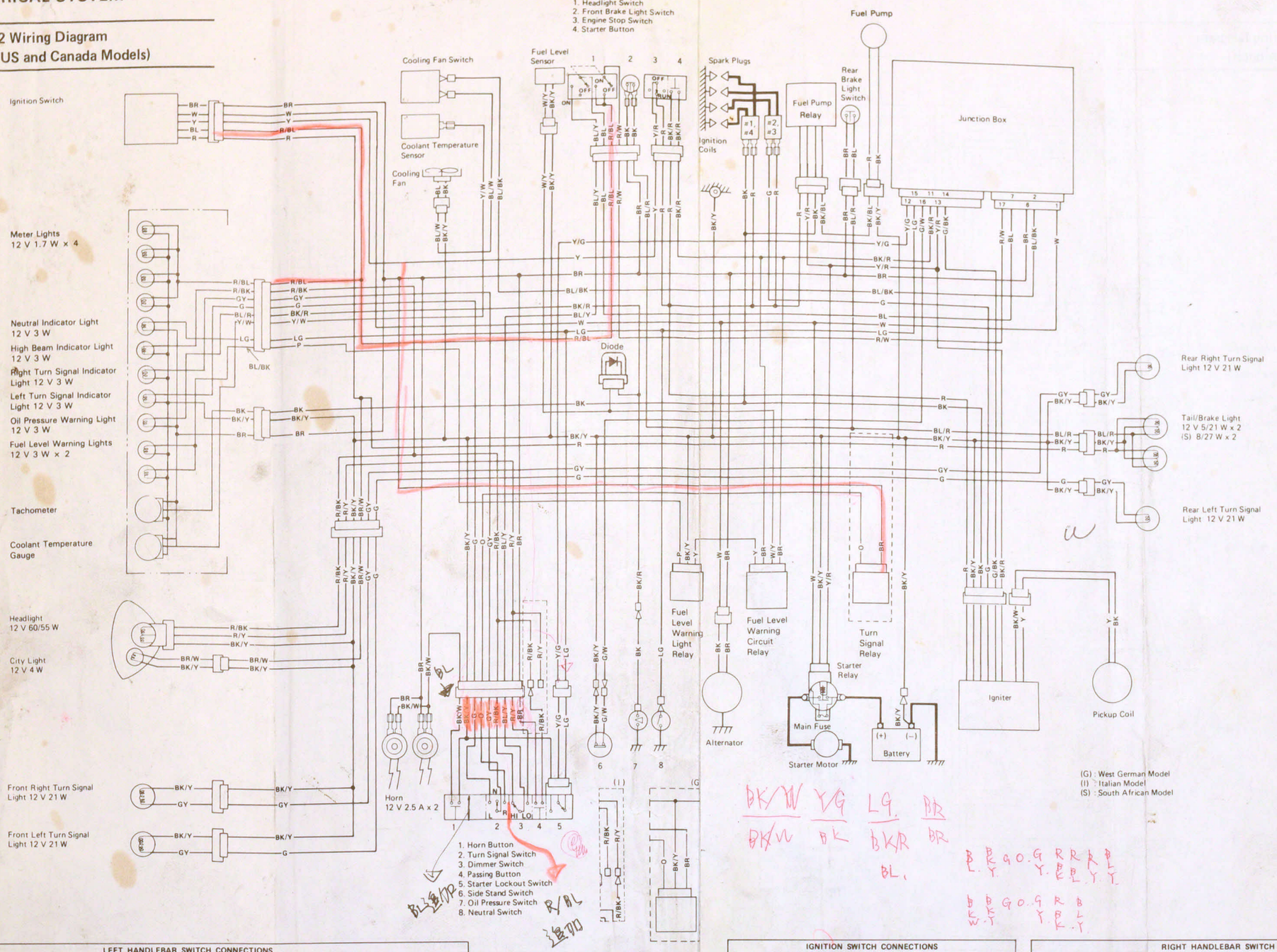
Engine Stop Switch		
Color	Y/R	R
OFF		
RUN	○—○	

Starter Button		
Color	BK/R	BK/R
PUSH	○—○	

Front Brake Light Switch		
Color	BK	BK
Released		
Pulled in	○—○	

(98051-1211A)

ZX1100-C1, C2 Wiring Diagram (Other than US and Canada Models)



(G) : West German Model
(I) : Italian Model
(S) : South African Model

Color Code	
BK	Black
BL	Blue
BR	Brown
CH	Chocolate
DG	Dark green
G	Green
GY	Gray
LB	Light blue
LG	Light green
O	Orange
P	Pink
PU	Purple
R	Red
W	White
Y	Yellow

LEFT HANDLEBAR SWITCH CONNECTIONS

Starter Lockout Switch			
Color	BK/Y	Y/G	LG
Released		○	○
Pulled in	○		

Horn Button		
Color	BK/Y	BK/W
ON (Push)	○	○

Dimmer Switch			
Color	R/BK	BL/Y	R/Y
HI	○		
LO		○	

Turn Signal Switch			
Color	GY	O	G
R	○		
N			
L		○	

Passing Button		
Color	R/BK	BR
ON (Push)	○	

IGNITION SWITCH CONNECTIONS

	Light	Battery	Ignition	Tail 1	Tail 2
Color	BR	W	Y	BL	R
OFF, LOCK					
ON	○	○	○	○	
P (PARK)		○	○	○	

RIGHT HANDLEBAR SWITCH CONNECTIONS

Engine Stop Switch		
Color	Y/R	R
OFF		
RUN	○	

Headlight Switch				
Color	R/W	R/BL	BL	BL/Y
OFF				
○	○	○		
ON	○	○	○	

Starter Button		
Color	BK/R	BK/R
Push	○	○
Pulled in		○

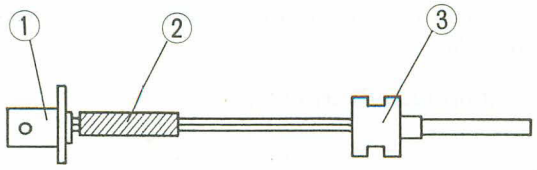
Front Brake Light Switch		
Color	BK	BK
Released		
Pulled in	○	

Ignition System

Pickup Coil Installation

Refer to the Base Manual, noting the following.

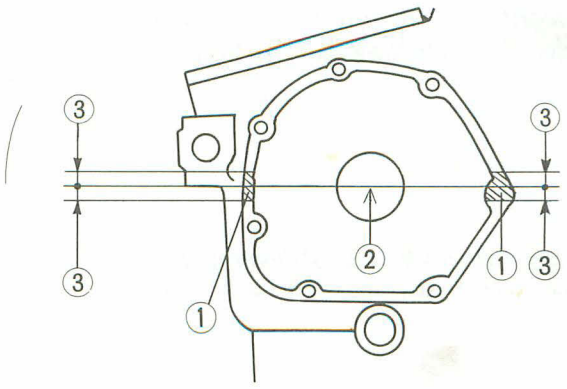
● Be careful of the pickup coil lead tube position.



1. Pickup Coil
2. Position the tube to the pickup coil side.
3. Grommet

● Apply a silicone sealant to the following.

Crankcase



1. Silicone Sealant Applied Area
2. Crankcase Mating Surface
3. 5 mm

IC Igniter Inspection

Refer to the Base Manual, noting the following.

IC Igniter Internal Resistance **(x 1 kΩ)**

Tester (−) Lead Connection	Tester (+) Lead Connection							
	R	BK/Y	Y	BK/W	G	BK	G/BK	BK/R
R	–	2.4 ~ 9.8	4.3 ~ 17	2.4 ~ 10	6.1 ~ 24	6.1 ~ 24	5.9 ~ 24	16 ~ 66
BK/Y	∞	–	1.4 ~ 5.8	0	2 ~ 8	2 ~ 8	2.6 ~ 10	9.2 ~ 37
Y	∞	1.4 ~ 5.8	–	1.4 ~ 5.8	4 ~ 16	4 ~ 16	4 ~ 17	11 ~ 44
BK/W	∞	0	1.4 ~ 5.8	–	2 ~ 8	2 ~ 8	2.6 ~ 10	9.1 ~ 37
G	∞	∞	∞	∞	–	∞	∞	∞
BK	∞	∞	∞	∞	∞	–	∞	∞
G/BK	∞	2.7 ~ 11	4.2 ~ 17	2.7 ~ 11	5.8 ~ 23	5.8 ~ 23	–	13 ~ 52
BK/R	∞	13 ~ 54	16 ~ 62	13 ~ 54	25 ~ 100	25 ~ 100	18 ~ 70	–

Headlight

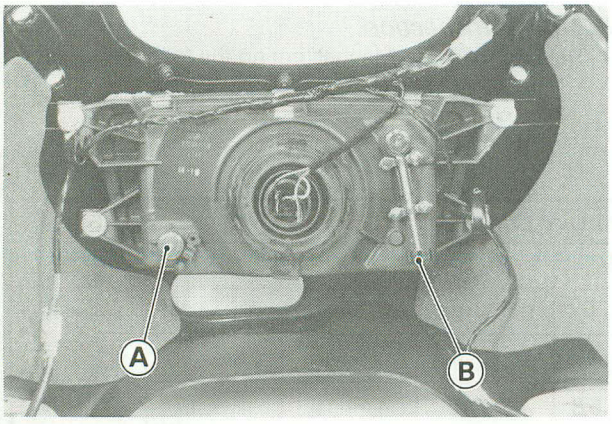
Headlight Beam Horizontal Adjustment

Refer to the Base Manual, noting the following.

Headlight Beam Vertical Adjustment

Refer to the Base Manual, noting the following.

Inside of Upper Fairing



A. Horizontal Adjuster B. Vertical Adjuster

Fuel Pump

Inspection

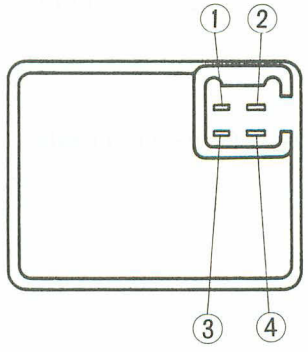
Refer to the Base Manual, noting the following.

Fuel Pump Relay Internal Resistance

● Set the ohmmeter to the x 1 kΩ range and make the measurements shown in the table.

★ If the meter readings are not as specified, replace the fuel pump relay.

Fuel Pump Relay Terminals

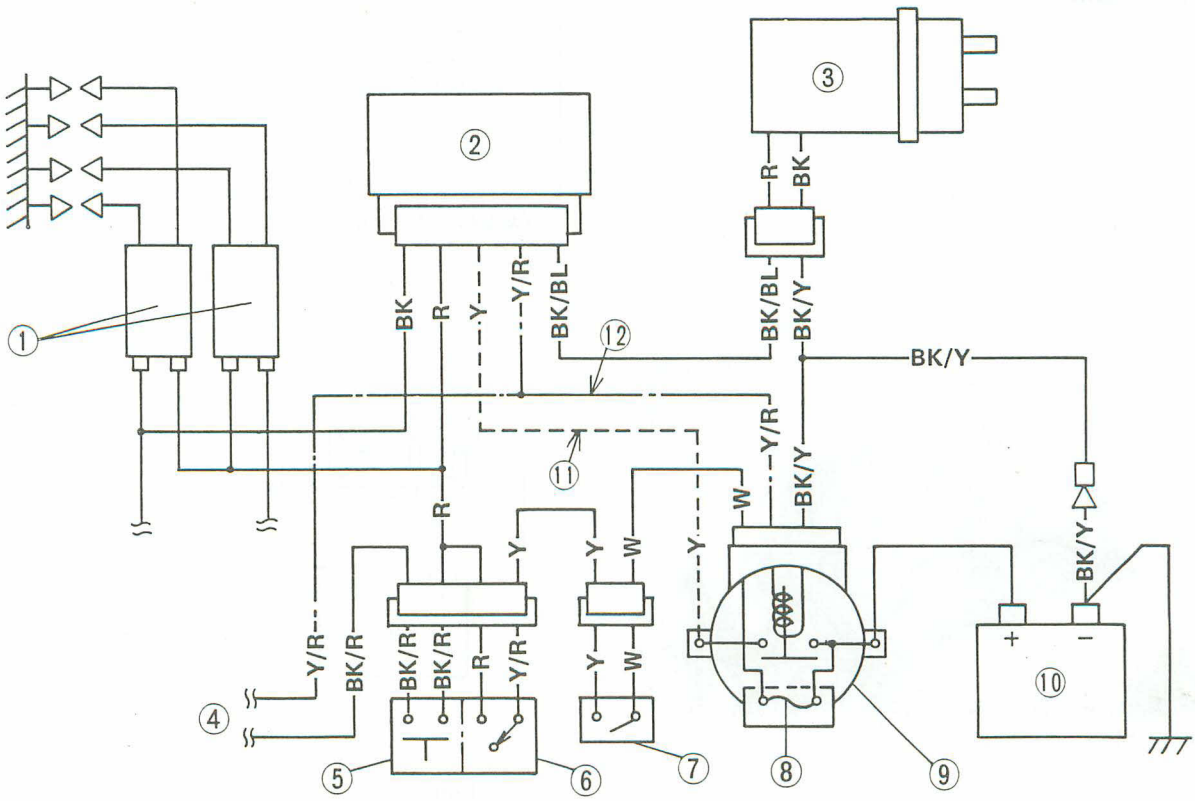


Fuel Pump Relay Internal Resistance (x 1 kΩ)

Tester (−) Lead Connection	Tester (+) Lead Connection			
	1	2	3	4
1	−	∞	∞	∞
2	∞	−	∞	∞
3	∞	10~100	−	∞
4	∞	20~200	1 ~ 5	−

⚠CAUTION

Use only Hand Tester 57001-983 for this test. An ohmmeter other than the Kawasaki Hand Tester may show different readings.
If a megger or a meter with a large-capacity battery is used, the pump relay will be damaged.

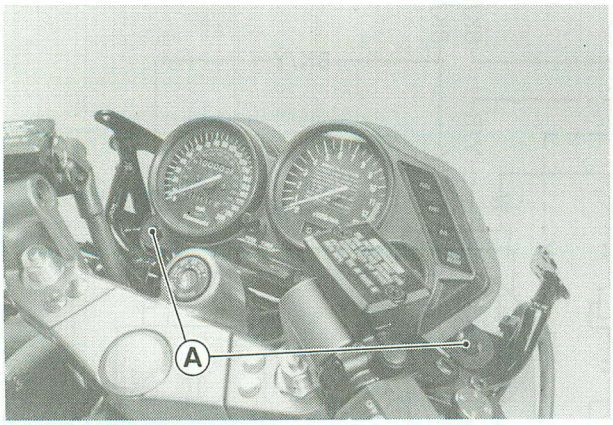


1. Ignition Coils
2. Fuel Pump Relay
3. Fuel Pump
4. Starter Circuit
5. Starter Button
6. Engine Stop Switch
7. Ignition Switch
8. Main Fuse, 30A
9. Starter Relay
10. Battery
11. For US and Canada Models
12. For Other than US and Canada Models

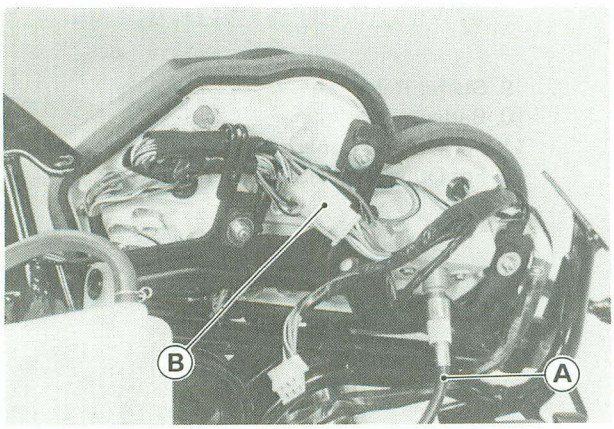
Meters, Gauge

Meter Removal

● Remove the following.
Upper Fairing
Meter Mounting Bolts
Speedometer Cable (from Meter)
Meter Lead Connector (disconnect)



A. Meter Mounting Bolts



A. Speedometer Cable B. Meter Lead Connector

⚠CAUTION

Place the meter so that the face is up. If a meter is left upside down or sideways for any length of time, it will malfunction.

Fuel Level Warning Light Relay Inspection

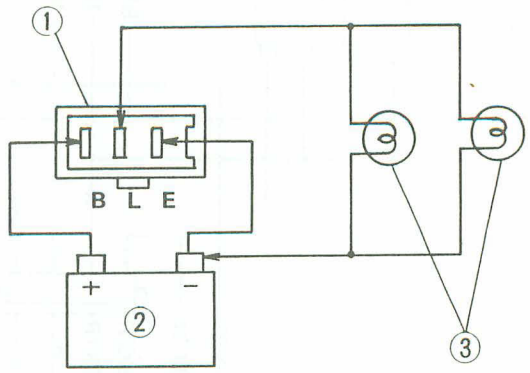
● Connect the test lights and 12 V battery to the relay as shown.

★ If the relay does not work as specified, the relay is defective.

Testing Relay

Load		Flashing Times (c/m*)
Number of Test Lights	Wattage (W)	
1	3.0 ~ 3.4	140 ~ 200
2	6.0 ~ 6.8	70 ~ 100

* : Cycle(s) par minute



1. Relay
2. 12 V Battery
3. Test Lights

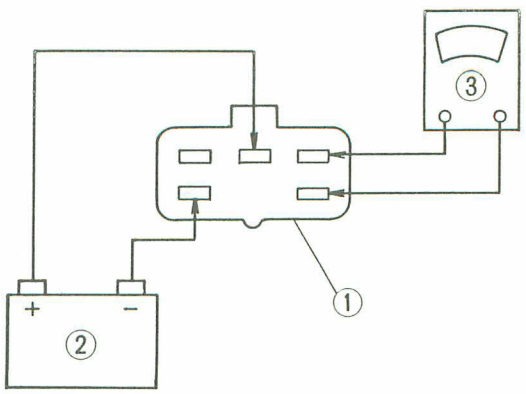
Fuel Level Warning Circuit Relay Inspection

● Connect an ohmmeter and 12 V battery to the relay as shown.

★ If the relay does not work as specified, the relay is defective.

Testing Relay

Meter Range: x 1 Ω
Criteria: **When battery is connected → 0 Ω**
When battery is disconnected → ∞ Ω



1. Relay
2. 12 V Battery
3. Ohmmeter

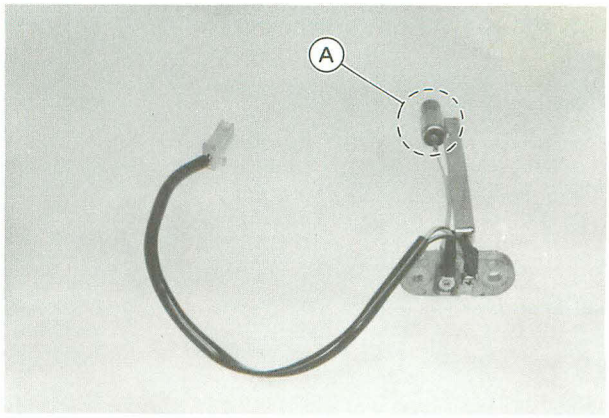
Fuel Level Sensor Inspection

- Make sure that the wires, connectors, and other parts which are related to the fuel level warning circuit are in good condition.
  - Wires and Connectors
  - Fuel Level Warning Lights
  - Fuel Level Warning Light Relay
  - Fuel Level Warning Circuit Relay
- Remove the diode which is related to the fuel level warning circuit.
- Remove the fuel level sensor, and re-connect the sensor to the main wiring.
- Turn on the ignition switch, and see the fuel level warning lights.

Fuel Level Sensor Inspection

When sensing portion is submerged in fuel:
Fuel level warning lights are off.
When sensing portion is in air:
Fuel level warning lights are flashing.

★If the warning lights do not work as specified, replace the fuel level sensor.

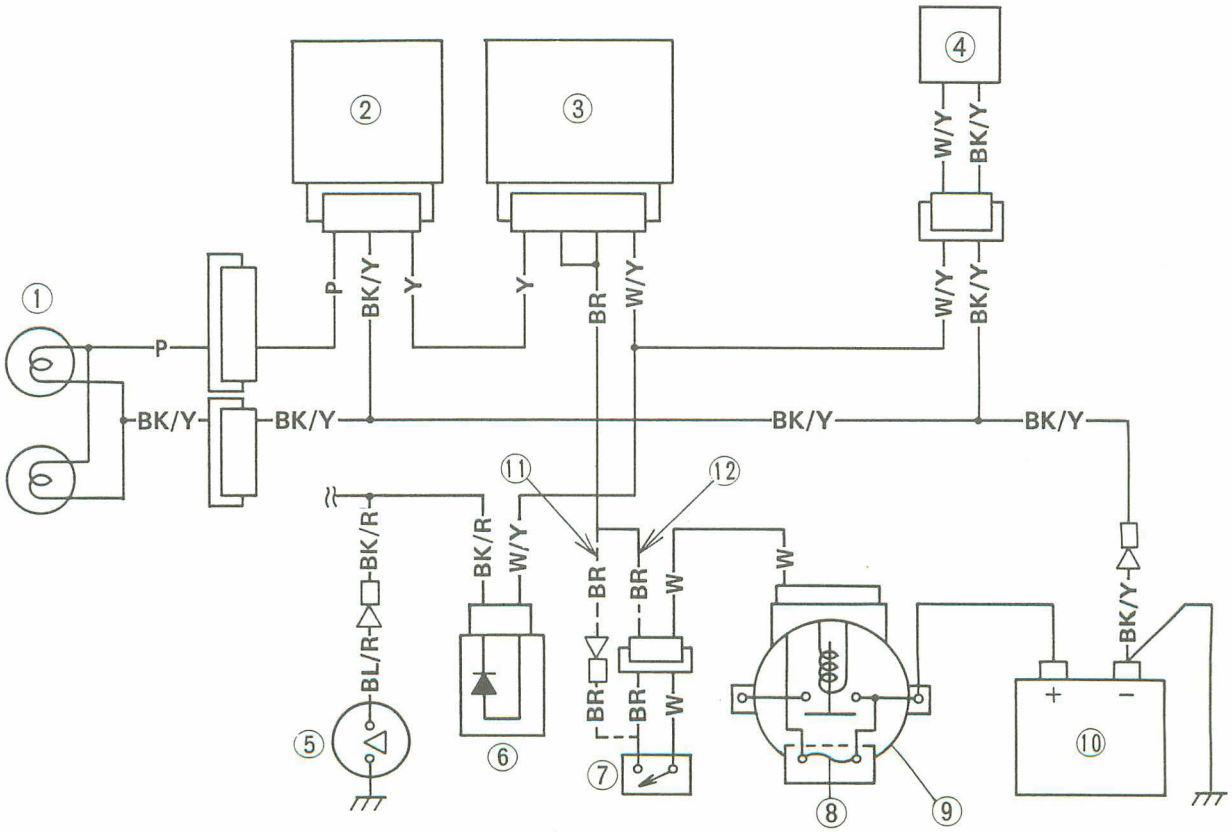


A. Fuel Sensing Portion

NOTE

○*Thermistor is used in sensing portion of the fuel level sensor.*

○*It takes about 20 ~ 180 seconds for the warning light to flash after it is placed in the air.*



1. Fuel Level Warning Lights
2. Fuel Level Warning Light Relay
3. Fuel Level Warning Circuit Relay
4. Fuel Level Sensor
5. Oil Pressure Switch
6. Diode
7. Ignition Switch
8. Main Fuse, 30A
9. Starter Relay
10. Battery
11. For US and Canada Models
12. For Other than US and Canada Models

Appendix

Table of Contents

* : Refer to Base Manual

MODEL APPLICATION

Year	Model	Beginning Frame No.
1990	ZX1100-C1	JKAZXBC1□LA000001, or JKAZXBC1□LB500001, or ZXT10C-000001
1991	ZX1100-C2	JKAZXBC1□MA013001, or JKAZXBC1□MB501701, or ZXT10C-013001

□ : This digit in the frame number changes from one machine to another.

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